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ABSTRACT

The papers collected here concern the interfaces between various components of grammar (semantics, syntax, morphology, and phonology) and between grammar itself and various extragrammatical domains. They include: "The OSU Random, Unorganized Collection of Speech Act Examples"; "In and Out in Phonology"; "Forestress and Afterstress"; "The Principle of Phonology-Free Syntax: Introductory Remarks" (with G. K. Pullum); "Two Spurious Counterexamples to the Principle of Phonology-Free Syntax" (with G. K. Pullum); "The Unaccented Pronoun Constraint in English"; "WH Constructions in English"; "Free Word Order in GPSG (Generalized Phrase Structure Grammar)"; "Immediate Precedence in GPSG" (with Joel Nevis); "Incorporating the Insights of Autolexical Syntax"; "Government in Unexpected Places"; "Agreement Features: Layers or Tags?"; "Suppressing the Zs"; and "What's Become of Construction Types?" (MES)

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Working Papers in Linguistics

No. 32

INTERFACES

Papers by Arnold M. Zwicky

July 1986

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Working Papers in Linguistics # 32

Interfaces

Papers by Arnold M. Zwicky

The Ohio State University

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July 1986

Introduction

Interfaces

Papers by Arnold M. Zwicky

The papers collected here concern the interfaces between various components of grammar (semantics, syntax, morphology, and phonology) and between grammar itself and various extragrammatical domains. They have two (overlapping) sources: some are earlier manuscripts that have for one reason or another failed to reach print (these I have left essentially in their original forms), and some are drafts of work in progress. Asterisked notes provide more specific information about the history of each paper.

A.M.Z.

Table of Contents

Interfaces

Papers by Arnold M. Zwicky

Page

The OSU Random, Unorganized Collection of Speech Act Examples 1-33
In and Out in Phonology 34-45
Forestress and Afterstress 46-62
(with G. K. Pullum), The Principle of Phonology-Free Syntax: Introductory Remarks 63-91
(with G. K. Pullum), Two Spurious Counterexamples to the Principle of Phonology-Free Syntax 92-99
The Unaccented Pronoun Constraint in English 100-113
WH Constructions in English 114-124
Free Word Order in GPSG 125-132
(with Joel Nevis), Immediate Precedence in GPSG 133-138
Incorporating the Insights of Autolexical Syntax 139-143
Government in Unexpected Places 144-145
Agreement Features: Layers or Tags? 146-148
Suppressing the Zs 149-156
What's Become of Construction Types? 157-162

OSU WPL 32.1-33 (1986)

The OSU Random, Unorganized Collection of Speech Act Examples*

Arnold M. Zwicky
Ohio State University

1. **Background remarks**. The material in section 3 below was assembled during (and after) a seminar on speech acts, taught jointly by David Stampe and me at Ohio State in the Winter Quarter of 1975. My original intent was to assemble some examples, taken from ordinary speech, of small bits of English discourse (single sentences, or sentence fragments, occasionally short sequences or exchanges) that were in some way problematic for linguistic analysis. These were to serve as spurs to discussion in the seminar and to thought and reflection outside it. Very quickly the project ballooned: 51 examples on 14 January, another 59 on 28 January, another 68 two days later, another 46 later this same day, and so on through 24 February, when the total stood at 739. A July addendum brought this total to 777, all distributed on dittos to the members of the seminar and to a number of interested outsiders; a small appendix of eight further examples did not reach the ditto stage, but is included below.[1]

Clearly it was only too easy to collect specimens for my purposes: so much of ordinary speech is problematic from the point of view of general principles relating sound, meaning, use, and context. There are at least two sorts of difficulties in deciding what to say about particular examples. First, it is often hard to say when meanings are *conveyed* by sentences and when they are *expressed* by them, to say whether the way we take a sentence can be accounted for by chains of common sense inference, or whether this understanding is conventionally ('idiomatically', or 'formulaically') associated with a form or construction in the sentence. More towards the conveyed/inferential side are examples like (1).

(1) a. If I were you, I'd kill myself.
    b. I would go myself, but I'm in traction.

Clearly on the expressed/conventional side are the lexical and syntactic peculiarities of examples like (2).

(2) a. Go fly a kite!
    b. What's it with Jackie?

A second difficulty is that it is often hard to draw a line between the use of a construction or form and the quotation of someone else's creation. Does (3) involve a sentential idiom of English, or is it in effect a quotation from the media?

(3) Eat your heart out, Aristotle Onassis!

2. **Problematic examples.** The specific difficulties associated with particular examples can be grouped into four types: syntactic, lexical, or even phonological peculiarities; uses of sentences that are

somewhat or greatly at variance with the literal meanings of those sentences; intonational contours; and material modifying the force of an utterance or adding some force to the existing one. I will illustrate these categories briefly.

First, syntactic, lexical, and phonological peculiarities. These may be associated with specific sentence types in both direct and indirect discourse, or they may be restricted to root S constructions. Of the first type are double wh constructions, which occur only in interrogative clauses, whether direct or indirect:

(4) a. Who went where? [direct question]

b. What a beautiful rider { Sarah is! / *who is!? / *is who?! } [direct exclamation]

c. I wonder who went where. [indirect question]
d. *Everyone who went where got a teddy bear. [(indirect) relative]

Similarly, *hold it* 'stop' occurs only in imperatives, direct or indirect:

(5) a. Hold it!
b. *He held it. [= He stopped]
c. I told him to hold it.
d. *I knew he had held it. [= I knew he had stopped.]

Peculiarities of the second type--uses of linguistic forms which are restricted to root S's--are exemplified by all ordinary explicit performative verbs and hedged performative verbs:

(6) a. I bid two hearts.
b. I order you to leave.
c. Let me offer you some squid canapés.
d. I must inform you that you are to be impaled.
e. I would like to request a bath towel, please.
f. I can reveal that your application for sainthood is favorably looked on in powerful circles.

Here the bidding, ordering, offering, and so on are performed only by direct constructions like the ones above, and not by indirect constructions. A great many elliptical constructions are also restricted to root S's:

(7) a. Into the warehouse with them!
b. *I insisted that into the warehouse with them.
c. Why not paint your house ultramarine.
d. *I suggested why not paint her house ultramarine.
e. Me take the garbage out!?
f. *I couldn't imagine { why / that } me take the garbage out.
g. Take a chicken; sauté until brown.
h. *I told him to take a chicken, and advised him to sauté until brown.

Indeed, some phonological reductions are restricted to root S's with particular uses: many English speakers have *s'pose* for *suppose* only in root S's where *suppose* has its 'parenthetical' or 'expressive' sense--(8a) and not where it has its 'reportive' sense (8b).

(8) a. I { suppose } you like the abstract expressionists.
  { s'pose }
b. Moses { supposes } his toeses are roses.
  { *s'poses }

Finally, there are many linguistic forms associated with specific contexts, participants, registers, or styles. For instance, the sequence (9) could only have taken place on the telephone. Similarly, (10) must be printed on a (label on a) container. And (11), if used to refer to the addressee, is distinctly casual and American and masculine, normally used only by (certain) males to other males they already know.

(9) A. Is this Samuel Johnson?
B. Sorry, this is James Boswell.
(10) Contains no noxious chemicals.

(11) How's the { boy } ?
  { kid }

Next, there are sentences with common uses that are somewhat or greatly at variance with their literal meetings. I have in mind here such familiar examples as (12) used as a request for the addressee to pass the salt (rather than as a question about the propinquity of the salt to the addressee), as well as (13), intended as a piece of advice (rather than as a simple assertion of what the speaker would do if he were in the addressee's place, and (14) (addressed to a stranger writhing on the sidewalk, his face contorted in pain), functioning not as a request for information, but rather as a way of opening a discourse preparatory to an offer of help.

(12) Can you reach the salt?
(13) If I were you, I'd learn Mandarin first.
(14) Are you ok?

Then there are intonational contours conventionally associated with specific uses of certain sentences or constructions. The intonation on tag questions is a case in point:

(15) You don't have your shoes on, { do you? }
  { do you? }

The first conveys that the speaker assumes that the addressee doesn't have shoes on, that the speaker has some reason for thinking this assumption might not be correct, and that the speaker is asking the addressee to tell him whether or not this assumption is correct. The second conveys that the speaker believes that the addressee doesn't have his shoes on and that the speaker is asking the addressee for a confirmation of this belief.

Finally, there are particles and other elements that begin, conclude, or interrupt sentences. These either modify the force of the utterance or add a force to the existing one. Here I include vocatives, both calls and addresses--(16a, b)--and epithets--(16c),

(16) a. Matilda, where are you?
b. I suppose, son, that you'll be wanting your own kingdom soon.
c. Look, you bastard, I can't take much more of this.

expletives of various sorts (*damn, shucks, heck, My God, thank goodness, (oh) boy, hey, wow, gee*), pause elements (*uh, oh, ah, mm, well, you know, like, don't you see*), introductory particles (*well, now, so, all right, ok, listen, hey, look, say, tell me, by the way, incidentally*), parentheticals (*I guess, they say, I don't think*), politeness elements (*hello, hi, so long, goodbye, see you, how are you?, how do you do?, nice to see you, thanks, thank you, no thanks, don't bother, you're welcome, please, excuse me, pardon, sorry*), agreement and disagreement particles (*ok, yes, sure, right, all right, no, no chance, not on your life, possibly, maybe, I suppose*), and response particles (*here! yes! yo! what!?*).

One way to gauge what might be placed on the lists is to ask: if you were trying to translate this into another language, would it give you trouble because of the disparity between form and use? Or, is this likely to give trouble to a non-native speaker of English because of the relationship between form and use?

3. **The list**. Some of the examples below are not new, but are lifted bodily or paraphrased from the literature on speech acts, semantics, and syntax by such writers as Sadock, G. Lakoff, Fillmore, Green, Elliott, Akatsuka, Bolinger, Davison, Morgan, Shopen, Ross, McCawley, Fraser, Emonds, P. Lee, and Heringer, none of whom I will cite or credit here. Some were collected (by Ann Zwicky and me) from a series of movies made between 1930 and 1960 and shown on television during the period of the speech acts seminar. Most were simply overheard.

Many of the examples are supposed to be read with characteristic intonations. I rely on the acting abilities of the reader. Many also make sense only in some rather narrow context, which I assume the reader can supply. What goes into the supplying of such contexts is, of course, a big part of what makes the examples intriguing in the first place.

There are overlaps and duplications. Moreover, there is no rationale whatsoever to the order of the examples; they appear randomly and without organization, just as I found them. The examples are reproduced here with their original numbering, which is somewhat capricious.[2]

1. (Just) $\left\{\begin{array}{l}\text{think about}\\ \text{imagine}\end{array}\right\}$ Martha's running for president!

2. a. Him having to wash his own dishes!
   b. Him with(out) hair!
   c. Me take the garbage out?

3. If you would leave the room, Mrs. Lee,... [instruction to leave]

4. a. Someone's going to get a spanking!
   b. Someone hasn't eaten his dinner!

5. I'll teach *you* (how) to steal sheep!

6. What did I tell you! [wʌ́ɾəd ày tɛ́lyə]

7. a. ((Do) you) know what (I did)!
   b. Guess what (I did)?
   c. What do you think (I did)!

8. Where do you get off telling me what to do!

9. Talk about complex variation!

10. $\left\{\begin{array}{l}\text{Don't}\\ \text{How about}\end{array}\right\}$ let's do that!

11. You give me that!

12. *You* undo it!

13. a. Don't you touch me!
    b. Don't you dare (touch me)!

14. Oh, *don't* be sick!

15. Let's $\left\{\begin{array}{l}\text{suppose that you } \underline{\text{are}} \text{ the Queen of Romania.}\\ \text{let x equal 2.}\\ \text{consider the alternatives.}\end{array}\right\}$

16. (Now) $\left\{\begin{array}{l}\text{see}\\ \text{look}\end{array}\right\}$ what you've done!

17. You can say that again!

18. You bet your $\left\{\begin{array}{l}\text{life}\\ \text{sweet ass}\end{array}\right\}$ (I'm going to talk to him)!

19. No way (that I can do that)!

20. Tell it to the Marines!

21. Aw, $\left\{\begin{array}{l}\text{come}\\ \text{go}\end{array}\right\}$ on!

22. a. Come off it!
    b. Cut $\left\{\begin{array}{l}\text{it}\\ \text{that}\end{array}\right\}$ out!
    c. Knock it off!
    d. Move it!
    e. Fuck off!
    f. Hold it!

23. a. {Suppose / Assume} (that) we're in China, then...
    b. {Supposing / Assuming} (that) they are Communists, we're in trouble.

24. Let x equal 24. Then...

25. I'll thank you to watch your step!

26. {Do *I* have / Have *I* (ever) got} a car for you!

27. Have you heard the one about the traveling salesman and the pregnant kangaroo?

28. How many times {have I told you / do I have to tell you} {that I'm not Portuguese / to wipe your mouth}?

29. a. If I've told you once, I've told you a thousand times!
    b. If I've seen one, I've seen a thousand!

30. Look who's here!

31. a. {Here comes / There goes} John!
    b. Here I am!

32. Where's the fire?

33. What's with him?

34. How's it going?

35. How's your ass?

36. So's your old man!

37. You're telling *me*!

38. What's up?

39. What's going on?

40. How've you been?

41. What's {the matter / wrong}?

42. How *about* that!

43. I'll take that money!

44. I'll have some cake, please!

45. I'll finish it, I will!

46. Want some help, do you?

47. Did you hear that? ['why aren't you obeying/responding?']

48. Be {advised / warned} that dogs are not admitted.

49. Thank you! [perfunctory, with intonation either (a) falling from extra high, or (b) rising]

50. Take two before bedtime.

51. I'll be damned if I'll eat fish fingers!

52. $\left\{\begin{array}{l}\text{The hell with}\\ \text{Screw}\\ \text{Shit on}\end{array}\right\}$ the opposition!

53. What's $\left\{\begin{array}{l}\text{it}\\ \text{up}\end{array}\right\}$ with Jackie?

54. What $\left\{\begin{array}{l}\text{'s}\\ \text{was}\end{array}\right\}$ that?

55. Don't $\left\{\begin{array}{l}\text{hand}\\ \text{give}\end{array}\right\}$ me that!

56. (So) who's asking personal questions?

57. I'll be $\left\{\begin{array}{l}\text{a blue-nosed gopher}\\ \text{damned}\end{array}\right\}$ (if it isn't raining)!

58. Passengers $\left\{\begin{array}{l}\text{are requested not to flush}\\ \text{will please refrain from flushing}\end{array}\right\}$ toilets while the train is standing in the station.

59. You're $\left\{\begin{array}{l}\text{fired}\\ \text{hired}\end{array}\right\}$!

60. a. I'll bet you didn't do it! [*You're on!]
    b. You didn't do it, I'll bet!

61. [I'll bet you $10 you can't swallow asbestos!] You're on!

62. a. Damn it!
    b. Bless you!
    c. Screw the Board of Regents!

63. That's a good boy!

64. You see! [I told you so!]

65. a. That's enough!
    b. I've had it!
    c. That's it!

66. a. How (very) beautiful!
    b. What a (very) fine cat (you are)!
    c. It's so (very) silly!
    d. He's such an ass!

67. What $\left\{\begin{array}{l}\text{on earth}\\ \text{the hell}\\ \text{in the world}\end{array}\right\}$ (is going on here)?!

68. Why (not) paint your house purple?

69. See here, my friend!

70. I say!

71. Now, now, dear.

72. I can't imagine what she sees in him!

73. Eyes right!

74. Left face!

75. Hands off!

76. Into the wagon with them!

77. One more beer and I'm leaving!

78. No money, no service.

79. Not that jar, you don't!

80. Not on your life!

81. Considering that she's only six, she's a pretty good lion-tamer.

82. I would go, but I'm cooking.

83. If you paid your bill, you could get the heat turned back on.

84. Having trouble with that fire, are you?

85. a. Nice weather, isn't it?
b. Having trouble with your Sanskrit, aren't you?

86. [Did you do well?] Is the Pope Catholic? [= 'Yes']

87. If that's a good answer, I'm Harold Macmillan!

88. You know, I think that's a pit viper.

89. You want to turn right at the corner.

90. You'll see that the grammis fits into the clistor.

91. $\left\{\begin{array}{l}\text{Note}\\ \text{Notice}\\ \text{Observe}\end{array}\right\}$ that the answer is absurd.

92. Eat your heart out, Paul Newman!

93. I question that this is the best solution [*You questioned that...]

94. What do you say, dear?

95. What's become of Waring?

96. I'm not putting on my hat today!

97. She might (just) as well walk this way.

98. Give it up, why don't you?

99. You('d) better clam up, Dick.

100. a. Why did you go?
b. What will you see?

101. Take New York; it's full of ethnic minorities.

102. a. So they say.
b. So I've heard.
c. So you say!

103. You must be Solomon Marcus.

104. [You ask about my introduction to raw clams] That would be the 14th of January.

105. You $\left\{\begin{array}{l}\text{ask about this bracelet}\\ \text{wonder why I'm wearing a chicken suit}\end{array}\right\}$. [That's because...]

106. a. Go fly a kite!
b. Go soak your head!
c. Go jump in the lake!

107. You come home and what do you see? An unmade bed, ...

108. $\left\{\begin{array}{l}\text{I hate to tell you this}\\ \text{You'll probably be sorry to hear about this}\\ \text{You probably know this already}\end{array}\right\}$, but there's a spider on your knee.

109. Don't be $\left\{\begin{array}{l}\text{so stupid}\\ \text{such a fool}\end{array}\right\}$!

110. Whatever are you doing?!

111. That's a promise!

112. You have my word (that I never touched the cookie jar.)

113. $\left\{\begin{array}{l}\text{Who are you}\\ \text{What gives you the right}\end{array}\right\}$ to tell me what to do?

114. Since when are you responsible for these kids?

115. I'll choose my own clichés, thank you.

116. Well, I never!

117. [British] That's torn it!

118. a. That dirty swine!
b. You son-of-a-bitch!
c. You lexicalist!

119. What makes you say that?

120. [Hey, Harry!] What?

121. I don't suppose $\left\{\begin{array}{l}\text{you have a can opener on you, do you?}\\ \text{you'd have a can opener on you, would you?}\end{array}\right\}$

122. Would you be the lady of the house?

123. [Would you like another drink?] $\left\{\begin{array}{l}\text{Oh, don't bother.}\\ \text{(I) don't mind if I do.}\end{array}\right\}$

124. a. Everyone out of here!
b. Into the room, men!

125. Who am I speaking to, please?

126. Mary Martin, please.

127. Next!

128. Have you ever $\left\{\begin{matrix}\text{heard of}\\ \text{seen}\end{matrix}\right\}$ anything like that!

129. Well, look at Little Lord Fauntleroy!

130. As I was saying, ...

131. a. Will you take the garbage out, or do I have to?
b. You can damn well take out the garbage!

132. I know I should apologize for my appearance... [Oh, that's all right.]

133. How's the $\left\{\begin{matrix}\text{kid}\\ \text{boy}\end{matrix}\right\}$?

134. I hear you've got a new wombat.

135. You know what you can do with your pool cues.

136. So who are you? Prince Valiant?

137. Shall we say $500, Sir Alfred?

138. How to open the safe? Raffles paced about the room in feverish thought.

139. Is that you, honey?

140. Where are you?

141. $\left\{\begin{matrix}\text{This is Herman Melville.}\\ \text{Melville speaking.}\\ \text{Melville here.}\end{matrix}\right\}$

142. Here/Come/Fetch/Sit, Fido! [addressable only to domesticated animals]

143. [Thank you, Jacques.] Thank yóu, sir.

144. You're (entirely) welcome.

145. $\left\{\begin{matrix}\text{Once more}\\ \text{A little wider}\\ \text{A bit (more) to the left}\end{matrix}\right\}$, please!

146. All right, Mr. Jones, your pies are ready.

147. All right, all right, you can take the car!

148. $\left\{\begin{matrix}\text{Let me tell you}\\ \text{I'm telling you}\end{matrix}\right\}$, I'm really tired.

149. I don't know about that. [= 'I'm not sure I believe that']

150. Take it or leave it!

151. What if you had to leave town suddenly?

152. Who or what did you see?

153. Who went where?

154. How come you aren't drinking anymore?

155. Don't tell me you broke another Ming vase!

156. I ask you, gentleman, if this is a reasonable course of action.

157. If I were $\left\{\begin{array}{l}\text{you}\\ \text{in your place}\\ \text{in your shoes}\end{array}\right\}$, I'd kill myself.

158. The name of Paul Revere's horse was ________.

159. The name of Charles' favorite, please.

160. President opens fun fair; festival to continue three days.

161. Boy, is syntax ever easy!

162. It's $\left\{\begin{array}{l}\text{a}\\ \text{(just) the}\end{array}\right\}$ most beautiful house!

163. [Take a chicken.] Boil until tender.

164. a. Contains no phosphates.
     b. Bottled in Kentucky.
     c. Open here.

165. [I saw Nancy downtown yesterday.] That's funny; I thought she was in Cleveland this week. Are you sure it was Nancy?
     [Query: What does *that* refer to?
     Second query: Why *thought* instead of *'ve been thinking,* when speaker obviously doesn't accept the previous speaker's assertion?
     Third query: What does *it* refer to?]

166. It's a girl!

167. a. Pedestrians on berm.
     b. Falling rocks.
     c. Low-flying aircraft.
     d. Deer crossing.
     e. Fallen rocks.
     f. Zebra crossing.

168. Let's hear it for the French-speaking Walloons!

169. Down with male chauvinism!

170. Off the pigs!

171. (Hoo)ray for Foster Kane! [cf. # 52]

172. Mother knows best, dear.

173. Don't we like our oatmeal bath, Mr. Mankiewicz?

174. (There will be) no talking in the showers.

175. What will you have, ladies?

176. If out of order, call Ohio Bell central office.

177. Depressed? Lonely? Call 555-1010 for instant help.

178. Will trade stuffed bear for mint copies of *Wonder Warthog*.

179. A. D. Zwicky will supply dramatic readings upon request.

180. Previous parenthesis should be marked as #179.

181. It is almost *too* easy to collect specimens.

182. You know that gear with the little crystal teeth? Well, I think I just broke one of them.

183. a. Enter here.
b. No exit.

184. What have we here?

185. What's all this, now?

186. I didn't expect a kind of Spanish Inquisition!

187. [A: You're hired!] B: How do I fill out this form? Will I answer the phone? Do I do filing?

188. You can't do better than to buy a car from Mad Dog McGoon.

189. I should have thought you'd detest Maple-Clam Surprise.

190. Trust me.

191. { Don't give it a thought
No trouble (at all) } [= 'you're welcome']

192. May all your children be acrobats!

193. I hope you *drown* in the damn lake!

194. Shut up and deal!

195. Oh, please, let me win this one!

196. Way to go, big red bear!

197. I can sing anything you can sing!

198. Things are rough all over, fella.

199. You never can tell with guys like that.

200. You just can't trust Munchkins. [Note: the problematic point is *just*]

201. Even big boys have to eat their spinach, Johnny.

202. You finish that homework or I'll know the reason why!

203. [A: My behind hurts!] B: You'll think your behind hurts! [= 'I'll spank it until it *really* hurts']

204. She really gave him what for.

205. Someone to see you, doctor.

206. [A: What's wrong with you?] B: Would you believe leprosy? Jungle rot? Poison ivy?

207. Anyone who hates dogs and children can't be *all* bad.

208. a. Happy birthday!
b. Merry Christmas!

209. a. Good morning/evening/night!
b. Sleep tight!

210. Be a good girl, honey, and pick up your room.

211. I don't have to remind you that these flasks are likely to explode. [Note: this is a reminder.]

212. I'm afraid (that) you flunked the exam. [Notes: Asserts that you flunked. Synonyms of *afraid*--*scared*, *frightened*, *anxious*--don't work this way. Even *sorry*, which ought to (given its meaning), doesn't; *I'm sorry you flunked* is not an announcement of the flunk. The next two examples, however, are.]

213. I'm sorry, but you flunked the exam.

214. I'm sorry to say that you flunked the exam.

215. {The results are to be found} on the table
{You will find the results} in the back of the room.

216. If you're looking for the results, {they're on the table}
{you'll find them on the table}
[Query: what sort of *if*-clause is this?]

217. Fancy an idiot like him knowing anything like that!

218. If you're ever in Disneyland (again), look me up. [Query: what does *ever* contribute?]

219. Double or nothing!

220. Chicago or bust!

221. Freedom now!

222. {I couldn't care less.}
{I could care less.}
[Note: It's not hard to see how the first comes to convey 'I don't care'. The common use of the second in the same way is baffling.]

223. Time will tell.

224. I told you so! [nyah! nyah! nyah!]

225. a. (No) can do!
b. Will do! [*Won't do! (in the sense 'I won't do it')]

226. a. Just a minute/second!
b. Wait up (for me)!

227. Coming!

228. Wait up (for me)!

229. [A: shall we move on?] B: Anything you say.

230. It couldn't have happened to a nicer guy!

231. $\left\{\begin{array}{l}\text{There's something}\\ \text{There are a few things}\end{array}\right\}$ you should $\left\{\begin{array}{l}\text{know (about me)}\\ \text{be warned about}\end{array}\right\}$

232. $\left\{\begin{array}{l}\text{Don't (ever)}\\ \text{Never}\end{array}\right\}$ darken my door again!

233. Why did you have to $\left\{\begin{array}{l}\text{tell me}\\ \text{say}\end{array}\right\}$ that!
[Note: the have to is the anomaly]

234. [card playing]
a. Hit me!
b. I'll see you.
c. I'll raise you ten.

235. [auctions]
a. Five dollars has been bid.
b. Do I hear ten?
c. Sold to the lady in the trench coat!

236. I can't tell why I love you, but I do.

237. I promise you that if you don't shut up I'll slap you.

238. He insisted on $500 a week, and why not?

239. I cried for you, but did you cry for me?

240. [She left because she was underpaid and because she couldn't stand the city.] Good reasons both.

241. I don't (quite) know how to $\left\{\begin{array}{l}\text{say}\\ \text{tell you}\end{array}\right\}$ this, but I just suddenly realized that I no longer love Alys.

242. Must you talk with your mouth full?

243. I wonder if some good little boy is going to eat up all his spinach.

244. [A: How's it going?]
B: $\left\{\begin{array}{l}\text{Me? I can't complain/kick.}\\ \text{Don't ask!}\end{array}\right\}$

245. My dear, I wish there was some way I could help!

246. Is that so!

247. To whom it may concern:

248. You lived with her for ten months, $\left\{\begin{array}{l}\text{right}\\ \text{is that so}\end{array}\right\}$?

249. $\left\{\begin{array}{l}\text{Please welcome}\\ \text{(And) now (here's)}\end{array}\right\}$ the lovely and talented Shirley Shameless!

250. Sol Hurok proudly presents the Tarzana, California, Balalaika Band!

251. a. May I be excused?
b. You're excused.

252. That's easy for *you* to say.

253. Watch it! [= 'Be careful']

254. You should have *seen* the way she reacted when she heard that the Albanian team had won!

255. I'll tell you something interesting about this guy: he's really freaky about lobster salad.

256. There's something I want to ask you: why do you insist on wearing one gold earring?

257. $\left\{\begin{array}{l}\text{I have}\\ \text{There's}\end{array}\right\}$ someone I want you to meet. Heloise, this is Abelard. Abelard, Heloise.

258. You can have this lovely embroidered shin-warmer for only $19.95.

259. I think you probably ought to know that there's some chance it might be better if you could possibly manage to hold the spoon in your right hand.

260. Don't you want somebody to love, fella?

261. You aren't shy, are you, big boy? [Note: no falling intonation on *are you*]

262. [cf. 255-7] James, there's something you ought to know: Herbert and I have met before, back in Ypsilanti.

263. Just think! Julia Child right here in my kitchen, and I haven't a thing to offer her!

264. Me, the guy who wrote the Olentangy Symphony, and you want me to copy the harmonica parts for a street singer!

265. That's enough out of you!

266. Do you understand/realize $\left\{\begin{array}{l}\text{how rude you sometimes are}\\ \text{the gravity of your situation}\\ \text{that you've just synthesized horse}\\ \text{dung}\end{array}\right\}$?

267. I couldn't help noticing you were speaking Basque. [Do you know where I could hire some shepherds?]

268. They say it's going to rain tonight.

269. Far be it from me to criticize a great artist like Liberace!

270. This guy comes up to me and says 'Ooga-booga!'

271. This stuff isn't bad, for a Wisconsin burgundy.

272. (You) pinch my ass one more time and I'll slap your nose off!

273. Don't (you) slap my nose, or I'll stamp my feet and cry!

274. a. (Just) listen to that train (rush past)!
b. (Just) watch that guy (bust bricks with his ears)!

275. Like I said to Arlene, you can't depend on marmosets.

276. After him, men!

277. After you, Mrs. Robinson.

278. I'm just dying to see your etchings.

279. a. Watch your language!
b. [British] Language!

280. Butt out!

281. Tit for tat!

282. It takes one to know one!

283. Believe me, he was really angry!

284. I wouldn't (go so far as to) say *that*!

285. Don't hesitate to ask any questions you might have.

286. (The) last I heard of him, he was in Hong Kong.

287. How's this for a pirouette?

288. After all, how abstract $\left\{\begin{array}{l}\underline{\text{is}}\text{ phonology}\\ \text{could phonology }\underline{\text{be}}\end{array}\right\}$?
[Implied answer: not all that much.]

289. All alone by the telephone, and what should I do?

290. Lamont, it's you!

291. You do what you like and I'll do what I like.

292. Give him an inch and he takes a mile.

293. On the telephone with me right now is a young hairdresser from Lima, Ohio.

294. Into the arena came six pious Christians and two dispirited lions.

295. If $\left\{\begin{array}{l}\text{only I'd}\\ \text{I'd only}\end{array}\right\}$ known what you wanted!

296. How's tricks?

297. They don't call him Stud for nothing!

298. And how!

299. [Poor man!] He was so nice and good and live-and-let-live.

300. a. Have a pleasant day!
b. Have a good time!
c. Have fun!

301. Am I right in thinking you're the Prince of Pruzistan?

302. [Two more orders!] As if I didn't have enough to do!

303. [A: Let me see a size 10 Möbius strip, please.] B: Here you are, sir.

304. Just forget you ever saw/knew me.

305. It's a date!

306. You wouldn't have a Kabardian-Miwok dictionary in here, would you?

307. [A: Why shrimp in beer? B: Why not?] A: You got me (there).

308. Cheese it, the cops! [Note: OED has citations from early 19th c.; suggests cheese is from cease]

309. What are you doing here? [= 'Why are you here?']

310. Leave/keep Marie out of this! [= 'Don't discuss Marie anymore']

311. You and your funny ideas!

312. [A: Have you seen the baby?] B: See it! I found it.

313. You talk too much! [= 'Shut up!']

314. Hey, what's the idea?

315. Over my dead body!

316. Come on, honey. [= 'Let's go!']

317. If it isn't asking too much, could I have my teddy bear back?

318. [A: I want you to wash the dog.] B: Who, me?

319. Who's got a cigarette? [= 'Someone, give me a cigarette']

320. Chances are, there isn't a single joint left in the house.

321. Stabbed through the ribs, and not more than an hour ago, either!

322. Where do you think you're going? [= 'You're not going to go anywhere!']

323. Watch your step! [Note: both more literal and more figurative sense.]

324. Mind the step! [British]

325. Watch your head!

326. Aw, come on! [= 'I don't believe what you say']

327. See that you're not followed. ['see' = 'insure'; see = see to it]

328. Go ahead (and do it).

329. Maybe it would be kinder to talk to her later.

330. I could really use a beer, Sammy.

331. He'll be here, you can depend on that!

332. Hey, what is this? [= 'What's happening here?']

333. Thanks to you, I am happy again.

334. I think you('ve) got something there, Jack. [= 'That's a good idea', 'I think you're right']

335. Would you (please) not practice the piano now.

336. So what!

337. Ok, you asked for it!

338. Oh, $\left\{\begin{array}{l}\text{for the love of Mike}\\ \text{for Christ's sake}\end{array}\right\}$, can't you see he loves you?

339. You can give me a shine, boy.

340. [A: I got a job] B: No kidding!

341. I don't have to stand here and be insulted!

342. You wanna back off, buddy?

343. Are you gonna fool around, or are you gonna play golf?

344. a. How's that (again)?
  b. What was that?

345. Just what is *that* supposed to mean, Gladys?

346. a. Who asked *you*?
  b. Says who?
  c. Oh, yeah!
  d. Says you!

347. Who are you calling a drunk?

348. Never mind those fruit bats, George!

349. What do you say we go and get some ice cream!

350. I'm sorry, but I didn't catch/hear/get/understand what you said.

351. How much money you got?

352. Each to his own.

353. Listen, fella, don't call this number again.

354. I don't blame you for being angry, but try to understand my position.

355. Nobody can talk to me like that (and get away with it)!

356. I'd be obliged if you'd give her a message.

357. I won't take no for an answer.

358. What are you trying to pull, buster?

359. Who are you trying to kid, lady?

360. [A: Fascinating, isn't it?] B: Fascinating my ass!

361. a. She's (as) tall as can be.
  b. I love her as much as can be.
  c. I love her as much as tongue can tell.

362. a. He's going to live, don't you think?
  b. Do they eat lettuce here, do you think?

373. Buzz off!

364. Can it!

365. Hold it down!

366. Down in front!

367. Speak of the Devil!

368. (You) seen one, you seen'm all. [Note logic.]

369. Thanks, but no(,) thanks.

371. How's that for a soufflé?

372. a. Atta boy/girl!
b. *That's a boy/girl! [asterisked as an equivalent to the preceding]

373. I dare say!

374. I'll say!

375. You don't say?!

376. Are you ready for this (one)?

377. Does a chicken have lips? [= 'No'; cf. questions about the Catholicity of the Pope]

378. Hang a Louie/Ralph. [= 'Turn left/right']

379. You know that car you used to have? [What do you mean, 'used to'?]

380. a. You bet.
b. Sure. [= 'Thank you']

381. Baby needs new shoes! [Note: an invocation to Lady Luck]

382. I've been there (myself) (, fella) [= 'I understand your problem']

383. [Hurts?] I'll show you 'hurts'. [cf. # 203]

384. Stop it, you two/ ??three/ *four!

385. a. Break it up!
b. Clear out!

386. I care?

387. Who's next?

388. Unhand that woman!

389. I don't mind telling you; I'm pissed.

390. And that's (absolutely) my final offer.

391. a. Up the I.R.A.!
b. Up yours!

392. Faroese Talmud student wishes to share spacious apartment with same. [Note: the oddity is same.]

393. Suffice it to say, he's rich.

394. For what it's worth, it's kosher.

385. Beats ((the) hell out of) me.

396. [card-playing] I'm out.

397. As long as {I'm thinking about it
you're here
I've got you on the phone} , are you circumsized?

398. I don't think you realize/appreciate the gravity of the situation.

399. Bite your tongue!

400. Knock on wood.

401. It's a good book, (even) if I *do* say so. [Note: bizarre position of stress]

402. Take my word for it, it's cold.

403. [initiating a discourse:] No, don't tell me. Let me guess: Lady Godiva!

404. Guess who!

405. Do you carry gelignite?

406. Are you ready to order?

407. Can I take your order?

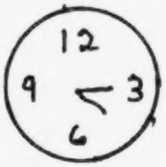
408. Just (bring me) a glass of water.

409. Nothing for me, thanks.

410. Thank you. Call again.

411. Yes! We're open! [sign on a closed shop]

412. Sorry! Closed. [sign on a closed shop]

413. Back at 

[sign on closed shop at 4:00]

414. This is my parting shot.

415. There's plenty more where these came from.

416. You're darn tootin' (that isn't a garter snake)!

417. Wait till you see what I've done!

418. (Wait till you) get a load of these papers!

419. You know *me*, Miranda.

420. Well, no harm in asking!

421. a. No doubt about it.
     b. No question.

422. It's about time you got here?

423. I'd be happy/glad if you'd turn off that buzzer. [cf.: If you'd turn off that buzzer, I'd be happy/glad.]

424. Step lively!

425. Stick 'em up!

426. One if by land, two if by sea.

427. There's no smoking in here, Mr. Curtis.

428. Chimpanzees are forbidden in Hall, Ms. Goodall.

429. (Now) let's not get abusive, Mr. Harmon.

430. How's about some hash? [Query: Where on earth does the [z] come from?]

431. What do you say $\left\{\begin{array}{l}\text{about going to the store}\\ \text{we go to the store}\\ \text{let's go to the store}\end{array}\right\}$?

432. I stand corrected.

433. Your money or your life!

434. That's him, all right.

435. You'll take these and like it!

436. That settles it! No more ice cream for you!

437. To be sure.

438. Take ten, boys and girls!

439. Swing it, honey!

440. Let's have that again! [= 'Please repeat']

441. That's nothing! [Wait till you see the next one!]

442. a. Calling all cars!
b. Paging Miss Steinem!

443. Not many guys would have the guts to admit that they cry at Shirley Temple movies!

444. And what will the lady/gentleman have?

445. Get your hands up!

446. As a matter of fact, ...

447. It's a deal!

448. I call that a great shot!

449. Ok, shoot! ['Go ahead and speak']

450. If anyone can do it, Tarzan can!

451. [A: You're a dirty pig!] B: You're another! [Note: *You too*! is literal]

452. Not so fast, fella! [= *either* 'Don't go/do that so fast' *or* 'Just a second']

453. Why don't you people go back where $\left\{\begin{array}{l}\text{you belong}\\ \text{you came from}\end{array}\right\}$?

454. No kidding!? Izzat so!? [# 246]

455. (You) know something, honey? (I really don't think you should wear green lipstick.) [cf. # 255-7 and 262; and contrast with (*you*) *know what*?]

456. I still say the worst trip was when we got lost in White Plains.

457. Remember how we used to dangle our feet in the creek? [I'd like to do that again.]

458. For an exciting surprise, send two dollars to Corn Porn Products, Racine, Wisc.

459. No lie!

460. Let me at 'em!

461. I'm not exactly delighted with this situation either, you know.

462. This has been Charles Kuralt. [Note: can be used only by radio/television announcers at the end of a program. Query: Why on earth the present perfect?]

463. a. Seriously, folks.
b. All joking aside, folks.

464. I can (just) see it now: me in the White House, ...

465. I'd do anything for a fix.

466. That's Adams: A, D, A, M, S.

467. That's 'Zwicky', not 'Zickwich'.

468. You're sick--S, I, C, K, sick.

469. Would I cheat you? Look, Mike, this is me, Andy, your old friend! Remember me?

470. Pan American Flight 1602 now loading at Gate X-59.

471. All aboard!

472. Last call!

473. $\left\{\begin{array}{l}\text{Once and for all}\\ \text{For the last time}\end{array}\right\}$, ...

474. You owe it to yourself to try this exciting new product.

475. You'll never know (just) how much I love you, Todd.

476. I think that stinks, if you'll pardon the expression.

477. Now arriving from New York at Gate 251--TWA flight EZ-7. [cf. # 470]

478. And while you're at it, ...

479. Do you think you could lend me a tenner until pay day?

480. [A: Would you care for another dilled shrimp?]
B: Oh, I wouldn't think of taking the last one!

481. Would you $\left\{\begin{array}{l}\text{like}\\ \text{care for}\end{array}\right\}$ some of Acapulco's finest? [cf. be pleased/attracted by, love, find to one's taste, etc.]

482. Hello in/out there!

483. Is there a doctor in the house?

484. (Is (there)) anyone $\left\{\begin{matrix}\text{home}\\ \text{(in)}\ \left\{\begin{matrix}\text{there}\\ \text{here}\end{matrix}\right\}\end{matrix}\right\}$? [cf. Is there someone here?]

485. [A: Thank you.] B: It was a privilege.

486. [Me want to live with you?] Are you crazy? [= 'of course not']

487. I can take a hint; I'm leaving.

488. Another country heard from!

489. Make $\left\{\begin{matrix}\text{that}\\ \text{mine}\end{matrix}\right\}$ a double, Harry.

490. That's $\left\{\begin{matrix}\text{it}\\ \text{all}\end{matrix}\right\}$! [= 'This is the end']

491. You ain't just whistlin' Dixie!

492. If you think I'm going to wash your socks for you, you've got another think coming!

493. You make me $\left\{\begin{matrix}\text{sick}\\ \text{puke}\end{matrix}\right\}$, (you and your (damned) Masonic secrets)!

494. What say we take in a Japanese monster flick?

495. Eating just isn't my thing right now, ((do) you) dig?

496. I'm not Santa Claus, after all.

497. You're the patsy, get it?

498. That'll be the day!

499. How time flies (when you're having fun)!

500. You can't deliver that speech and remain in Minneapolis.

501. I must be sick, or things wouldn't waver like this.

502. If you need any help, I'll be right here in the next room.

503. May/can I help you?

504. Ready or not, here we come!

505. If you think of anything you want moved, feel free.

506. Let's hope he can do it this time.

507. We can't all be Noam Chomsky(s), you know.

508. A gentleman would have opened the door for me. [reproof]

509. a. Where's the fire, buddy?
b. What's the rush, mister?

510. (Now) that's a (real) pancake!

511. $\left\{\begin{matrix}\text{As the old saying goes}\\ \text{As they say in France}\end{matrix}\right\}$, blood is thicker than water.

512. I kid you not!

513. Well, here goes nothing!

514. Where did you learn to kiss like that, baby?

515. It's the only way to travel!

516. Once upon a time...

517. There once was a man named Oedipus, and...

518. They don't make them like that anymore!

519. When they made him, they broke the mold.

520. The struggle of class against class is *what* struggle--a *what* struggle? [Note: read with falling intonation, this is a quiz question; with rising intonation it's a reclamatory question or an incredulity question]

521. Who cares (about your troubles)?

522. Suppose we get on with this, gentlemen. [= 'Let's get on with this']

523. Begging your pardon, sir, there's a monkey on your back.

524. Not meaning to bother/trouble you sir, but you seem to have a scimitar stuck in your shoulder.

525. We don't use words like 'barf' at the dinner table, Susie.

526. Can't you put two and two together?

527. Can't you tell your ass from $\left\{\begin{array}{l}\text{your elbow}\\ \text{a hole in the ground}\end{array}\right\}$?

528. a. You have to see it to believe it!
b. It has to be seen to be believed!

529. If you don't mind my saying so, I think that wearing lavender underwear in the Packers' locker room would be a mistake.

530. If you ask me, I think you should forget linguistics and take up mah-jongg professionally.

531. a. Dear Mom:
b. Sincerely (yours)
c. Regards
d. Peace
e. Love/regards to Rex and Tillie.

532. Sure enough, that's just what he did!

533. She's really sump'n else!

534. If you're not headed anywhere in particular, maybe you could ride along with me.

535. I could (just) cry (, it's so awful)!

536. a. Not so rough!
b. Take it easy!

537. a. What's your pleasure, gentlemen?
b. Name your poison, friend.

538. I wouldn't touch that with a ten-foot pole!

539. What hole did you crawl out of?

540. What's this 'Uncle Mike' business/stuff?

541. I'm with you. [= 'I agree']

542. You shoulda smelled that room! [cf. # 254]

543. a. May I be the first to congratulate you on winning the Nobel Prize in Linguistics?
b. Let me be the first to congratulate you!

544. (Just) what do you intend to do about the garbage on the kitchen floor?

545. (And) whose little boy are you?

546. Why, you brute! Hitting a poor old man (like that)!

547. What I'm thinking is: suppose we let him have the money, then maybe he'll go away.

548. Run for your life!

549. It's good/great to be back!

550. Whistle? What whistle?

551. Given the way he drinks, it's amazing he's still alive.

552. You're not fit to clean the boots of a man like that!

553. Welcome to the Villa America!

554. [Of course I trust him; he's a friend of Jack's.] That's enough for me!

555. Read and weep!

556. I could sure go for some lobster!

557. a. Have a seat!
b. Take a load off your feet!

558. Now then, Mr. Katz.

559. You wait and see, she'll want me back!

560. a. Give us a dime, ol' buddy.
b. We'll be seein' ya. [Note: both us and we here are used by a single speaker to refer to himself]

561. $\left\{\begin{array}{l}\text{((Have) you) got}\\ \text{D'ya have}\end{array}\right\}$ some change so I can take the bus?

562. Bully for you!

563. Don't (even) ask!

564. You think a dance hall girl was a dirty life! You oughta be proud.

565. a. It staggers the imagination!
b. I don't believe a word of this!

566. This is really something!

567. I don't believe a word of this!

568. Well, I wouldn't say *that*, exactly, ...

569. Do I have the pleasure of addressing Alex Comfort?

570. If you'll excuse the intrusion, captain, I'll go on with my work.

571. You see before you a young woman who can read 20,000 words a minute.

572. I stand before you a chastened man.

573. Ok, Swami, or whatever your name is, we'll be back with this Christ Consciousness racket in just a minute.

574. (Going) $\begin{Bmatrix}\text{up}\\\text{down}\end{Bmatrix}$, please.

575. What kept you so long?

576. My word!

577. $\begin{Bmatrix}\text{Allow}\\\text{Permit}\end{Bmatrix}$ me to introduce myself.

578. And of course $\begin{Bmatrix}\text{I'm not forgetting}\\\text{I shouldn't forget}\end{Bmatrix}$ our special guest star, Myron Breckenridge!

579. Don't get me wrong!

580. Take my word (for it)!

581. Well, $\begin{Bmatrix}\text{listen to}\\\text{look at}\end{Bmatrix}$ you!

582. Oh, $\begin{Bmatrix}\text{come now}\\\text{come, come}\end{Bmatrix}$, Sue, that isn't an oryx!

583. You must be satisfied, or your money back.

584. Give $\begin{Bmatrix}\text{my}\\\text{our}\end{Bmatrix}$ best to Sally.

585. Little $\begin{Bmatrix}\text{do you}\\\text{does he}\end{Bmatrix}$ know!

586. If there's one thing I hate, it's people with clammy hands!

587. It may interest you to know that hamburgers are harmless.

588. Would you happen to know where Riga is?

589. Unless I miss my guess, that's a Rhodesian ridgeback.

590. I hear tell that there's a strange creature in that swamp.

591. That's what *you* think!

592. No shit! [falling intonation]

593. You double-cross me and I'll be in the D.A.'s office so fast it'll make your head spin!

594. For your information, buddy, 'faggot' is a fighting word.

595. He's kind of $\left\{\begin{array}{l}\text{--know what I mean?--pushy}\\ \text{pushy, if you know what I mean}\end{array}\right\}$.

596. He's a--how do you call it?--male chauvinist pig.

597. Altamont was, $\left\{\begin{array}{l}\text{as he put it}\\ \text{in his words}\\ \text{as he said}\end{array}\right\}$, a 'bum trip'.

598. This is, $\left\{\begin{array}{l}\text{so to speak}\\ \text{in a manner of speaking}\\ \text{as it were}\end{array}\right\}$, virgin territory.

599. And at that point Robin, literally, crashed.

600. a. Shake!
b. Put it there!

601. I'm going to get him if it's the last thing I do!

602. Take it from $\left\{\begin{array}{l}\text{a friend}\\ \text{me}\end{array}\right\}$: You're wild!

603. Take my word for it: it'll never be so nice again!

604. Do let's have an ice cream! [British]

605. $\left\{\begin{array}{l}\text{Look}\\ \text{Listen}\end{array}\right\}$, you, that won't do! [Note: this is an address use of you--also a put-down]

606. That's nothing to me! [= 'I don't care']

607. $\left\{\begin{array}{l}\text{Be good enough to}\\ \text{Be so good as to}\\ \text{Have the goodness to}\end{array}\right\}$ come by our house at 4 tomorrow.

608. What say?

609. [British] Good game, what?!

610. Come and get it!

611. Come what may, we'll stick together.

612. I got news for you, sister.

613. What'll it be, ladies? [cf. # 175]

614. Heave ho!

615. Now for a little fancy foot work!

616. (Would you) $\left\{\begin{array}{l}\text{care}\\ \text{like}\end{array}\right\}$ to join me in a cup of tea?

617. What made you ask about that?

618. Don't try anything funny!

619. (As) I was about to say, guano futures look promising.

620. When she fixes things, she really fixes things.

621. You (just) can't beat hot soup on a cold morning!

622. { To my knowledge
(As/so) far as I know } , this is the best brand of snake oil on the market.

623. [calls in children's games]
a. Ollie, ollie, oxen free!
b. King's x!
c. Come out, come out, wherever you are!
[see Iona and Peter Opie, *The Lore and Language of Schoolchildren, Children's Games in Street and Playground*]

624. Round and round she goes, where she stops, nobody knows!

625. Nice going!

626. It would be a good idea if you kept quiet.

627. Get lost!

628. You know who he takes after! [Speaker to her daughter, *re* her grandson, with intended reference to her son-in-law]

629. That's a fine way to behave!

630. Hang loose, boy!

631. That's cute! [= 'that's stupid/awful']

632. Are you serious? [= 'I can't believe that']

633. May I have your attention!

634. What do you say, Buzz? [= 'Do you agree/consent?']

635. You know something: you read too many comic books.

636. You shouldn'a called me that!

637. Sounds good!

638. Start moving! Get going!

639. Nobody asked you to put your two cents in!

640. If you find anything more, just remember old Putty-Nose.

641. You lookin' for a sock on the button?

642. [A: I'm going to give it to him the first time I see 'im!]
B: Yeah? You and who else?

643. I suppose you've heard?

644. Don't take it like that, Tom.

645. While we're on the subject, I wish you'd stay home a little more.

646. Well, for cryin' out loud!

647. He'll be here any minute.

648. You're a swell dish! I think I'm gonna go for you!

649. What's eating you?

650. If I don't want to, I don't have to!

651. a. Leave it to me, kid!
b. Step on it!

652. In a pig's eye!

653. Guess I'll call up Gwen.

654. You stay put, if you know what that means!

655. Oh, Tommy, I could love you to death!

656. [A: I ain't runnin!] B: Who said you were?!
[Note: stressed on were, although said is also possible.]

657. I'll bring Tom back if it's the last thing I do! [same as # 601]

658. It is a problem that we, the public, must solve.

659. She's anybody's girl.

660. Congratulations (on your new book).

661. Kansas City, here I/we come!

662. Are you sick, or what?

663. Come on and be my party doll!

664. To each his own. (There's) no accounting for tastes.

665. And now "Cinderella", as told by Betty Friedan.

666. Best of all, you can do it easily.

667. Little realizing that Tully was Cicero, Willard spoke opaquely.

668. You wouldn't want to insult a lady would you?

669. Money cheerfully refunded if not completely satisfied.

670. Five'll get you ten we goofed.

671. That's more than I can say for my filustricator.

672. [Jury foreman:] The jury finds the defendant not guilty.

673. Mummy, my foot! [That's just a cricket bat wrapped with adhesive tape.]

674. No more monkey business, ((do) you) hear/understand?

675. On to the presidential palace!

676. Use your head!

677. James Beard at your service, madame!

678. For once in your life, do the right thing!

679. How dare you (enter without knocking)!?

680. (I) swear to God, I never touched the whipped cream!

681. I'm for going to the flicks. What about you? [= 'What do you think?']

682. I'll have no more of this generativist talk.

683. I'm no stranger to $\left\{\begin{array}{l}\text{Hollywood}\\ \text{depression}\end{array}\right\}$.

684. You wouldn't by any chance have a native speaker of Samoan in your class?

685. Behold the king!

686. Get me a camel, and make it quick!

687. Get a move on!

688. That's easier said than done.

689. With friends like you guys, who needs enemies?

690. Like it or not, you're going to have a test on Friday.

691. Like father, like son.

692. The more, the merrier.

693. Hut, two, three!

694. Sound off!

695. I haven't the foggiest!

696. I'll fix that guy's wagon!

697. Let a guy talk to you, will ya! [Note: two different readings with different intonations--request or challenge; also note that *a guy* refers to the speaker]

698. Name *one* person who got ahead without a high school diploma!

699. I should say not!

700. What's it to you!

701. [A: Martin Gardner!] B. $\left\{\begin{matrix}\text{Here}\\ \text{Present}\end{matrix}\right\}$, $\left\{\begin{matrix}\text{teacher}\\ \text{professor}\end{matrix}\right\}$.

702. All present and accounted for!

703. Nobody's perfect, (you know)!

704. I wouldn't have any idea, I'm afraid.

705. Pipe down!

706. Monte Carlo is $\left\{\begin{matrix}\text{pretty as a picture}\\ \text{*pretty as Arles}\end{matrix}\right\}$.

707. Needless to say, ...

708. $\left\{\begin{matrix}\text{Let }\underline{\text{me}}\\ \underline{\text{I}}\text{'ll}\end{matrix}\right\}$ worry about that stuff.

709. Anyone ever tell you you're cute?

710. Oh, let me have the strength to finish these lists!

711. If it's good enough for Gerry Ford, it's good enough for me!

712. Do I get my money or not?

713. For one thing, ... For another, ...

714. What's the big idea?!

715. Mild? You wouldn't *believe* how mild!

716. I won't go back! I'll kill myself first! [Note: It's the first that's in question]

717. That goes double (in spades) (for me)!

718. I'll be brief, Miss Sharp: We'd like you to be our dean.

719. In a word, no.

720. Drop dead!

721. There, there, dear.

722. We'll be calling/talking to you.

723. Now you're talking!

724. In you go!

725. Wash your car, mister?

726. This is your last chance!

727. It bears repeating that modern linguistics is structuralist.

728. I can tell (that) you're on the level.

729. By George, she's got it!

730. I'll teach you a lesson you'll never forget.

731. Let's have one, for old times' sake!

732. I've had it (with guys like that)!

733. It's only a matter of time (until we find the elixir)!

734. You gotta be kidding! Mr. Mooney give you a job!?

735. a. He's a real Republican.
b. He's a real fuck-off.

736. A: What do you call that little black bug? B: It's a flea.

737. A: What do you call carbonated beverages? B: I call them sodas, but some people call them cokes, or pop.

738. A: What do you call your invention? B: I call it a derivational constraint.

739. Ten Tips for Weight Control: Avoid fats and starches. Exercise regularly. Think thin. Keep celery in the refrigerator...

740. Suppose you come down from there. [= 'Come down'; from the movie, 'A Severed Head']

741. That takes the cake!

742. You'd better believe it!

743. You know it! [stress on both you and know]

744. Don't I know it!

745. Take care!

746. Wait a sec!

747. [A: Can I?] B: Sure you can!

748. Knock on wood!

749. Speak of the devil!

750. What with...and all that, I didn't sleep a wink.

751. a. Will attack if aroused.
b. Will bite when challenged. [zoo signs]

752. You're just unhappy, that's all!

753. May I have the pleasure of this dance?

754. Long time no see.

755. I've got *your* number!

756. (It's (been)) nice $\left\{\begin{array}{l}\text{meeting you}\\ \text{to meet you}\end{array}\right\}$.

757. Look here, fella!

758. You betcha!

759. Suit yourself.

760. So there!

761. Where does it hurt?

762. To make a long story short, ...

763. Search *me*!

764. Don't hold your breath!

765. Hold your horses!

766. Look, nobody calls John Wayne a fascist, not while I'm around!

767. That's for me to know and (for) you to find out.

768. I would deem it a pleasure (if you would...)

769. Take a tip from me!

770. Famous last words!

771. Don't think I'm telling you what to do, but...

772. Don't get me wrong!

773. Whose socks are these on the living room floor? [not an information question]

774. What is this junk on your bed? [not an information question]

775. Who knows? [stress on *knows*--why?]

776. (It's (been)) nice $\left\{\begin{array}{l}\text{to know you}\\ \text{knowing you}\end{array}\right\}$. [the acquaintance does not necessarily cease after this utterance]

777. Why oh why are speech acts so hard to analyze? [cf. *Who oh who did you see? etc.]

778. You heard what I said!

779. a. Is that a dumpling, or is that a dumpling?
b. Can that guy fly, or can he fly!

780. You're the $\left\{\begin{array}{l}\text{boss}\\ \text{doctor}\end{array}\right\}$.

781. a. It won't make me dopey or anything, will it?
b. They were playing or something.
c. If you're sick, or whatever, stay home.

782. Not that he ever complained.

783. Not from me, you didn't get it!

784. I $\left\{\begin{array}{l}\text{was just going to ask}\\ \text{just wanted to know}\end{array}\right\}$ why he was crying.

785. The transformation into a werewolf isn't all on the minus side.
[from the movie 'I was a Teenage Werewolf']

Notes

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[1] I am indebted to the registered students in the seminar (Gregg Eiden, Marion Johnson, and Robbie Kantor) and to the auditors (Jeanette Gundel, Nancy Levin, and Ann Zwicky) for their many comments and suggestions.

[2] Examples 363 through 415 were supplied by J. M. Sadock; they were suggested by examples earlier in the list, but are reproduced here without back references. Examples 626-37 are from the beginning of the movie 'Rebel Without a Cause'. Examples 638-58 are from the movie 'Public Enemy'.

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In and Out in Phonology*

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1. **Introduction**. I don't know who the first person was to use the words *internal* and *external* in discussing argumentation and evidence in linguistics, but whoever it was had an axe to grind: the very choice of words shows a bias in favor of the internal ('inside'). In fact, the history of discussions about these matters is full of invidious comparisons built not only into the names *internal* and *external* but also into various alternative names (for example, Skousen's 1975 proposal to call external evidence *substantive evidence* and thereby to elevate it). Here I will ask three questions. First, where does the issue of internal vs. external evidence arise in doing linguistics? Why is it in fact a problem for linguists, particularly phonologists? I will then spend a fair amount of space discussing what counts as internal and what as external, a question sloughed off by the other contributors with brief references. Finally, what is to be done? I conclude with a few prescriptions for phonologists.

2. **Why is it an issue**? I can see at least four places in linguistics where the issue of internal vs. external considerations comes up. To begin with, it arises in the very delimitation of the tasks of linguistics, or particular subfields within linguistics, that is, in the division of labor between linguistics and other fields and in the division of labor among the various subfields of linguistics. You might wonder why there should be such a division of labor. There is, of course, the truly practical reason that everybody can't do everything. But there is a much deeper reason, which follows from the hypothesis that *genuinely different* sorts of accounts are going to be required for the various fields and subfields.

If you have a particular view about the way in which fields of inquiry should be cut up, you have already made certain (a priori) decisions about what's 'in' and what's 'out' of linguistics or your part of it. If you believe that linguistics *is* sociolinguistics or that linguistics *is* psycholinguistics, you will as a result have made decisions about what kinds of evidence will without question be relevant to doing linguistic analysis. If you believe that what is sometimes called 'phonology' is really two separate subfields of linguistics--let's call them *allophonics* and *morphophonetics*--and your interest is in the former, then you will label certain data as outside the domain of your inquiry from the very beginning of the enterprise.

Even, however, within essentially the same delimitation of the task for linguistics in general and phonology in particular, questions of what's internal and what's external arise when we're choosing among alternative sets of theoretical assumptions. In (the very frequent) situations where phenomena from some other field are brought to bear on the choice of theoretical framework for linguistics, we need, as Wolfgang Dressler pointed out quite cogently in his contribution, *linking assumptions* (what Rudolf Botha calls 'bridge hypotheses') that will connect linguistics and the other field. If, for example, you are concerned about the existence of the phoneme as an entity that requires an account in a phonological description of language and you would like to bring evidence from slips of the tongue to bear on this issue, you are obliged to give some account of what connects slips of the tongue and the abstract analytic object, the phoneme, and to show moreover that slips of the tongue are in some way relevant to the analytic issue. Similar obligations ensue if you are choosing a specific feature system and you propose to appeal to articulatory, acoustic, or auditory phonetics; you are obliged to supply the assumptions that connect the various subfields of phonetics with the (again abstract) analytic framework being proposed for phonology.

A third place in which the internal/external distinction appears is in choosing, within a given theoretical framework, among alternative accounts of essentially the same facts. What I just said about choosing among theories goes in spades for choosing alternative accounts. In this case you need not only the linking assumptions and a way to determine relevance, but you also need to ascertain that the facts in question are relevant to these particular analytic choices--not just to phonology in general, but to the particular problem at hand.

At this point, I'll discuss briefly, and without giving any actual linguistic forms, a problem in the analysis of Sanskrit that has exercised me for what seems like an eternity now, namely what's sometimes called the *ruki rule*. I'm going to have to call it the ruki *phenomenon*, because what's at issue is whether we are dealing with one, two, three, four, sixteen, or whatever separate cases, each requiring its own independent description in a phonology of classical Sanskrit. The ruki phenomenon involves the appearance of a retroflex /s/ rather than a dental /s/ in the environment after the segments /r u k i/. Now, most phonologists hearing this for the first time are somewhat taken aback by it. It would not have occurred to most people that these segments might constitute a natural class. The literature includes quite a number of analyses which assume that these four segments[1] do constitute a natural class, as well as a number of challenges to this assumption, these giving rise to various suggested reanalyses. For example, the proposal of Allen (1954) is essentially that there are three separate rules, causing retroflexion after /r/, palatalization after /i/, and velarization after /k u/, with all three types of affected /s/ realized as /s/. Vennemann ms. (1972) groups back /k u/ with palatalizing /i/ as retracting segments, versus retroflecting /r/. David Stampe has suggested to me grouping /k u r/ together as retracting segments—assuming that retroflex segments in general are classed as back--versus front /i/. And one of my proposals (Zwicky 1970) grouped the sonorants /r u i/ against the obstruent /k/. The unity of the ruki class has been defended in turn by several writers: for instance, Vennemann himself opts for a natural class position on ruki (maintaining that the four segments are united by their acoustic effect of 'lowering the frequencies of the energy concentration in a following s̲'), while Sommerstein (1973:53f.) argues that they are just the [+high] segments (/ṣ/ being distinguished from /s/ as [+high] and [-ant].) The main reason given for preferring one of these proposals over the others has to do--this should be clear from the sampling of ideas I've just given--with the *phonetic motivation* for the shift of dental /s/ to retroflex /ṣ/. In order to make sense out of this reference to phonetic motivation, we have to supply quite a few intermediate assumptions that link the content of phonological rules to particular phonetic properties--the sorts of links that John Ohala and others have tried to supply over the years. I'm not going to work through the details here, but I should point out some of the more obvious problems with the proposals I've mentioned, such as Stampe's treating postalveolar /r/ as back but palatal /i/ as front, the widespread assumption that the nonlow vowels are retracting in effect (this despite the facts that *all* vowels are articulated back of /s/ and that /a/ is further back than /i/), and the contradiction between Vennemann's lowering proposal and Sommerstein's raising analysis. The crosslinguistic survey in Bhat (1973) deepens the mystery; it identifies, as factors promoting retroflexion, (a) a preceding r, whether retroflex or not, (b) a following retroflex consonant, (c) a following back vowel, (d) implosion, (e) word-initial position, and (f) neighboring velars or palatals.

I entered this arena in (1970) with an observation, not about the phonetic motivation of the rule or rules involved in Sanskrit, but rather about their susceptibility to exceptions. I repeated some well known facts about the ruki phenomenon: There are no exceptions whatsoever involving /k/ (that is, there are simply no attested instances of dental /s/ after /k/); there are exceptions (relatively few) in the case of /r/, and a rather substantial number in the case of /u/ and /i/. Thus there is a difference in the degree of exceptionality of /k/ versus /r u i/. I assumed that, ceteris paribus, you would expect the exceptions to a rule to be evenly distributed across the various environments in which the rule applies. Since this is not the situation for the ruki phenomenon, I suggested that there were actually two rules, as described above.

Now I supplied no linking assumptions that would connect the distribution of exceptionality to the desirability of subsuming some phenomena in a single rule or describing it in more than one, and I can't entirely recover the steps in my reasoning, but it seems necessary to reconstruct an intermediate step using the linking assumption that rules describing a single phenomenon must correspond to some unitary mental representation. Such an assumption, which would make the various subparts of a rule not open to separate learning or variation, would provide a way of getting from exceptionality facts to a decision about the one-rule/several-rules character of a phenomenon. But now that I've stated that linking assumption, it's not at all clear that any of us would want to subscribe to it. Still, something like it is needed if the facts alluded to are to bear as evidence on the analytic issue at hand.

A fourth way in which the internal/external difference appears in linguistics is post facto--in attempts to explain why some description (or even whole theory) takes the form that it does. Many appeals to ease of articulation, to avoidance of ambiguity, or in general to the large class of what have come to be called 'functional explanations' in linguistics are a posteriori (Kaye 1978): They do not claim to predict that the phenomenon in question must have occurred, but instead they claim to provide some sort of after-the-fact insight into why language should be the way it is. A rich collection of 'external' explanations has been provided (and challenged) in this area; see, for instance, many of the papers in Grossman, San, and Vance (1975).

Next, a few words about why linguists are so exercised about these matters, especially why phonologists are (it is almost impossible to look at work in phonology without an issue of external validation of some sort appearing). I would like to say that the problem in phonology is that there are simply *so many* alternatives available within almost any existing theoretical framework, and consequently that it's very hard to believe that the sort of evidence usually classed as internal could decide among the alternatives.

The sort of evidence that is without question internal deals with *alternation* and *co-occurrence* in the forms of linguistic units--the alternative forms of morphemes, words, and possibly phrases (in the case of phonology), as well as the restrictions on the occurrence of phonological units, within morphemes, words, and phrases, with respect to one another. Almost always we are dealing with what are in fact a finite number of items (granted, a rather large finite number), distributed within domains that are also finite, so that in most cases that have been considered in the phonological literature it would actually be possible to list all of the alternative forms, and list all of the relevant domains, and stop there. Such an analysis wouldn't be in any sense explanatory, but it is at least conceivable.

What I'm suggesting, then, is that there comes a point--and it may come fairly soon if you're hard-working--at which you've essentially exhausted all available evidence of the alternation and co-occurrence types. All the relevant facts are probably in hand, but your descriptive framework still provides a very large number of alternative descriptions. That is, I see the need for so-called external evidence in phonology as one arising from a real crisis in analysis.

Halle (1978) has maintained that if you look hard enough, then simplicity in the special technical sense of generative grammar will in fact decide such issues for you. In this paper Halle discusses issues in the description of three languages (Maori, Turkish, and Finnish) and claims that analyses which had been argued for on so-called functional grounds in fact would be supported by technical simplicity arguments alone, and consequently that the functional considerations were irrelevant for the purpose of deciding among alternative analyses. Halle here introduces a consideration that I haven't yet officially discussed, namely, some brand of simplicity. Simplicity considerations are *not* raw facts about the phonology of a language; we're not talking about the number of ways in which a particular morpheme can be pronounced or what the privileges of occurrence of some phonological unit are with respect to its neighbors.

3. **What's in and what's out**? Halle's claim leads me to a discussion of what will count as internal or external, beyond facts of alternation and co-occurrence. Before leaving these latter sorts of facts, I should say that I'm not concerned here with the issue of how you get facts about alternation and co-occurrence--whether they are obtained by observation, by introspection, by experimentation, or by elicitation, and what particular methods, within those four general types, are employed. I'm assuming that these facts are available to us, however they may be discovered, though I do point out that such 'facts' are in fact actually already low-level generalizations of some sort.

I will also sidestep serious discussion of two cases, productivity and variation, which seem to be problematic for anyone examining internal/external evidence. It is very hard to determine whether the productivity of some generalization should count as internal evidence--it is often used without comment, but you might reasonably feel that such considerations go beyond records of actual linguistic behavior and examine *potential* linguistic behavior, thus manipulating subjects in a quasi-experimental way. In the case of variation, other than that within the speech of a single person, the problem is the familiar one of whether it is an individual linguistic system that is being described, or a system shared by a social group. I'm going to have to assume that some sort of pronouncement by fiat has been made in these two cases.

Let me begin with *systemic considerations* that can play a role in evaluating alternative analyses. Here I would like to take seriously the idea (enunciated by Chomsky on many occasions) that a linguist's grammar is a *theory* of a language or part of a language. In fact, I'm going to borrow from discussions in the philosophy of science a list of considerations which are often used in choosing among alternative theories within some scientific field; I will treat them as considerations which can be used in choosing among alternative descriptions of some aspect of a language (this discussion will exhibit a general indirect influence of Botha's work).

The first of these I include for completeness: the degree to which a theory, or in our case a description of some aspect of a language, is *explicit*. If it's not sufficiently explicit it will be disfavored with respect to alternatives, other things being equal.

A very important consideration has to do with the *fit* between some proposed description and existing descriptions, or between the proposed description and the remainder of the theory within which the description is embedded. This particular consideration is almost invariably considered to be internal, and it's quite frequently used. You will find discussions in phonology, for example, of some analysis with the observation that it would require extrinsic ordering but that the theoretical framework within which the writer is working disallows extrinsic ordering of phonological rules, so that this analysis is disfavored with respect to alternatives consistent with universally determined rule application. That's a reference to a fit of a particular proposal with the surrounding theory. Similar remarks apply for analyses that require cyclic application of phonological rules. As it happens, both extrinsic ordering and cyclic rule application are relevant in the case of the ruki phenomenon. My earliest analysis (Zwicky 1965) required both features. As a result, it is favored or disfavored depending on its fit with quite general assumptions concerning the nature of phonology.

The next two considerations make a tight pair. The first has to do with the *completeness* or *exhaustiveness* or *comprehensiveness* that we require of an account, and the second with *the degree to which it's confirmed* by evidence within the language (including the extent to which there are 'independent' lines of evidence). The idea here is that we favor the descriptions which cover all of the potentially relevant facts (or at least as many as possible) and we favor those which have lots of confirming evidence within the language and relatively little disconfirming evidence. I don't have much now to say about such considerations, though I must mention a horrible problem in this area, namely that of distinguishing counterexamples from true linguistic exceptions. This is the type of problem that does not arise for physicists in the corresponding situation; for them, there are counterexamples and that's it. As you all know, languages have real exceptions, plenty of them in fact. But when we are talking about what confirms or disconfirms a description or theoretical proposal we somehow have to distinguish the plain old linguistic exceptions from true anomalies.

Next we come to *simplicity* in a nontechnical sense (the sense in which simplicity is treated in the philosophy of science, not necessarily the sense of simplicity to which Halle alluded, though they are not unrelated). I refer here to considerations having to do with the number of primitive concepts or terms, with the number of hypotheses, with the relative internal complexity of hypotheses, and so on. It's almost impossible to find an argument in phonology that can be unpacked without some reference to simplicity in a nontechnical sense, and the importance of simplicity in this sense has nothing to do with whether or not an analyst subscribes to something like the Chomskyan evaluation metric. Consider the ruki phenomenon. What, after all, would be wrong with saying there were four different rules? Why is one better than four or two or three or sixteen? Unpacking this *why* leads you to a set of assumptions about the desirability of relatively simple accounts. What would be wrong with saying that the rule(s) take /s/ as basic and derive /s/ from it? After all, the set of non-ruki environments is small in comparison to the set of ruki environments (see footnote 1). However, the relevant Sanskrit forms fall into two main classes--those showing /s/ in non-ruki environments and /s/ in ruki environments, and those showing /s/ in all environments--so that if /s/ is taken as basic for the first class of forms, some way must be found to distinguish alternating forms with putative basic /s/ from nonalternating forms (which always have /s/), for the reverse-ruki rule must apply only to the former set. The upshot is that the basic-/s/ analysis will necessarily be more complex (in one of a number of different possible ways) than the basic-/s/ analysis.

Now I must observe that as I continue through this list of considerations relevant to choosing linguistic analyses, it becomes less and less clear that we are dealing with matters that are in fact internal to linguistics, or to phonology. Appeals to simplicity could be claimed to be appeals to particular metatheories of linguistics, to those favoring certain kinds of descriptions and theories over others. And it could be claimed that metatheoretical preferences are not matters internal to linguistics (much less phonology), but rather are principles of philosophy, consequently outside the domain of linguistics itself.

When we come to the next consideration, (Popperian) *falsifiability*, doubts rise still further. The proposal here is that the description or the theory that makes the strongest possible claims is to be preferred: the one that makes the largest number of predictions, of the most varied sorts, and that countenances the narrowest range of facts. Here the feeling that we are appealing to a metatheoretical principle outside the domain of linguistics becomes even stronger.

When we reach the consideration of *plausibility*, we are explicitly referring to principles outside our domain. What is at issue here is the plausibility of a description (or whole theory) with respect to some other theory, whether the latter is actually formulated explicitly or not. In linguistics such considerations appear as references to phonetic plausibility (to articulatory mechanisms or to perception), to the learnability of some proposed system, or to the facts of historical change, for instance. We ask questions like the following. Is this description plausible with respect to historical change? Could it have arisen by known forms of historical change? Would future historical development shed some light on the nature of the present system? Is the particular description plausible with respect to what we know about how poetic forms work in the language in question? Or with respect to how language play operates there? These are matters that you have heard discussed in some detail by earlier contributors.

They are also situations in which we are desperately in need of linking assumptions. The most extensive discussion of these questions that I know of (focussing on historical change, language play, and acquisition) is Churma (1979) (see also the useful brief surveys in Sommerstein 1977:sec. 9.2.2). Churma's work brings us little cheer, for one of its lessons is that it is *very* hard to supply linking assumptions that both (a) are plausible on their own grounds as assumptions about some domain other than language structure, and also (b) do the work of linking linguistics with the other domain. The linking assumptions have to be sufficiently strong actually to bridge the two domains, but they also have to be independently credible.

In the case of acquisition, for example, the first linking assumption you are tempted to make is that children hit on mental representations for various aspects of their language and then don't give them up. That particular linking assumption would permit many familiar arguments connecting the facts of acquisition with adult language structure to go through, but the linking assumption is quite incredible, in my opinion. Trying to refine the assumption in such a way as to make it believable--while still connecting the facts of language acquisition to the nature of the adult system--is very difficult.

I should point out that plausibility considerations play a role not only with respect to linguistics and the allied disciplines, but also in treating some subarea of linguistics as against others. Suppose, for example, we're working within a theory in which allophonics and morphophonemics are distinguished and we're talking about morphophonemics. Then questions of phonetic motivation are at several removes from our domain of inquiry, being directly relevant to allophonics rather than morphophonemics. As far as morphophonemics is concerned, phonetic plausibility is an external consideration, and we need the same kinds of linking assumptions that we need if we are going to connect phonology to, say, aphasia studies.

As it happens, these last observations are germane to the ruki problem. There is every reason to think that the ruki phenomenon is morphophonemic. To begin with, the alternations in form involve two segments that are clearly different phonemes in Sanskrit (they are in contrast in non-ruki environments). Next, Kiparsky (1973:61-3) and O'Bryan (1974) have observed that the alternation between /s/ and /ṣ/ is exceptionless (subject to a general proviso I'll mention in a moment) when the /s/ is suffix-initial;[2] the many lexical exceptions all involve the failure of retroflexion within a morpheme. The retroflexion(s) will then make crucial reference to morpheme boundary (in Kiparsky's treatment, to the derived character of forms) and would as a result be classified as morphophonemic. It also appears that /s/ and /ṣ/ within morphemes are not distributed by rule but simply supplied as part of lexical entries.

O'Bryan notes further that all remaining apparent exceptions to retroflexion are forms in which a retroflex continuant, /ṣ/ or /r/, follows /s/ within the same word. There are then *no* lexically marked exceptions, and my (1970) argumentation is quite beside the point (even if a credible linking assumption could be pressed into service).

Bear with me for one more chapter in the ruki story, for not all the mysteries have been solved. O'Bryan concludes, correctly, that her arguments permit the ruki phenomenon to be described by a single rule. But they don't require it to be so described. What licenses the description of morphophonemic alternations with one rule, two, or sixteen? Phonetic plausibility--which figures so prominently in the literature I cited earlier largely *because* it is problematic--will have little to say in the matter. There is the fact that /r u k i/ are equally exceptionless in retroflecting morpheme-final /s/, but that fact is not of much moment: we don't expect many instances of lexical exceptionality in conditioning (as opposed to undergoing) morphophonemic rules, so that the exceptionlessness of every Sanskrit morpheme in the environment of the rule is not surprising (there *are* cases of exceptionality in conditioning--see Coats (1970) and the survey discussion in Kenstowicz and Kisseberth (1979: 394-400)--but they are not common).

I can imagine facts that would bear on the question, but I don't believe they are available in Sanskrit to point one way or the other. Consider the suffixes affected by retroflexion, and recall that we are dealing with a morphophonemic rule. Suppose that Robinson (1975), Skousen, and the Natural Generative Phonologists (among many others) are correct in believing that morphologized rules are ordinarily learned in connection with specific morphological categories, and not as phonologically conditioned operations; in this case, there would be a set of rules, each referring to a specific affected /s/-initial morpheme. If different /s/-initial morphemes were subject to different morphological conditions on retroflexion, we could ask whether *each* of these distinct morphophonemic rules applied identically after the four segments /r u k i/, or whether there were differences between one rule and another with respect to the effect of these four segments; a simplicity argument could be constructed for or against the unity of the ruki phenomenon in these circumstances. But, alas, the retroflexion has no conditions of the appropriate type. It seems irritatingly free of morphological conditions as well as lexical exceptions.

One final shot, harking back to my (1970) squib. The retroflexion of /s/ after /k/ is 'surface true', in the sense of NGP: There are simply no /ks/ sequences within words in classical Sanskrit, while there are /rs us is/ sequences. In a desert of usable facts, this remains--/k/ is different from /r u i/ in its combinability with /s/, while there seem to be no significant morphological or phonological similarities among the four segments. I view this as a standoff, perhaps an everlasting one, given the unavailability of true native speakers for the collection of possibly relevant external evidence.

4. **What is to be done**? Now to turn to some prescriptions and warnings. My first two prescriptions have to do with plausibility considerations that are 'external' but within linguistics.

The first is the prescription not to assume that phonology is parallel to syntax. We have no right to assume that the principles of argumentation that are appropriate in syntax necessarily carry over to phonology, that decisions about theoretical matters such as rule ordering in one domain carry over to the other, or that the formalisms appropriate for one domain are appropriate for the other. Let me say a few words about each of these points in turn.

In Zwicky (1973) I pointed out that there is an asymmetry in argumentation between phonology and syntax. If you have shown, for example, that certain classes of English subjectless imperative sentences ought to be analyzed with underlying structures having a second-person subject, you're entitled to infer that other imperative sentences also have such underlying structures, even though the particular sentence you're looking at might not have the kind of evidence that led you to this analytic decision in other cases. In phonology, as a rule, you can't do that. You're not licensed to move from a demonstration that a particular instance of the diphthong /ai/ has some underlying representation (let's say /ī/) to the position that all instances of the diphthong /ai/ have this underlying representation. The difference between syntax and phonology in this case has to do, I claimed, with a difference in the nature of the domains, syntax being infinite in the appropriate sense, phonology finite. In any case, I think it's fairly easy to see that some of the arguments you can make in one area do not carry over into the other.

With respect to the rule ordering issue, a case against language-particular ordering conditions for individual pairs of syntactic rules has been made fairly strongly (see especially Pullum 1976), though the issue is hardly closed. The parallel demonstrations in phonology are much weaker, in my opinion. In particular, examples of counterfeeding order in allophonics seem to be fairly numerous and hard to analyze away. My guess is that language-particular rule ordering might be eliminable in syntax, but probably not in phonology.

As for formalism, there's absolutely no reason to think that the formalisms suitable for, say, unbounded movement rules in syntax are going to have anything to do with those appropriate for phonology. Imagine alternative pronunciations of sentences in which some phonological segment could appear in either of two positions, one an indefinite number of segments away from the other, but which are otherwise identical; I know of no such examples. In general, if you import syntactic formalisms wholesale into phonology what you get is usually nonsense. In fact, I'd hope that the two components would have quite different internal organization, since that would lead to a more falsifiable general theory.

The second lesson is quite similar to the first: We have no right to assume (certainly not ahead of time) that allophonic processes are parallel to morphophonemic rules--that argumentation appropriate in one domain carries over to the other, that theoretical assumptions such as those about ordering carry over, or that formalisms appropriate for one will do for the other. The rather large number of people who have concerned themselves with distinguishing morphophonemics from allophonics (Skousen, Linell, Dressler, Stampe, and many many others) have been listing ways in which allophonic processes and morphophonemic rules always or sometimes are different from one another. If we take even a bit of this work seriously, then parallels in argumentation, theoretical assumptions, and formalisms cannot be assumed. And, as I pointed out earlier, if we want to import considerations appropriate to allophonics into discussions of morphophonemics (or vice versa, for that matter) we must supply linking assumptions to relate the two.

The third prescription I feel silly giving, but the fact is it's so often not been taken that the waters of phonological argumentation have been considerably muddied. This is the prescription to survey the **full** set of alternation and co-occurrence phenomena to be analyzed in a language. It's astonishing the extent to which intricate analyses with far-reaching consequences are proposed on quite incomplete sets of what count for phonology as primary data. Even such a work as *The Sound Pattern of English*, which takes on a very wide range of phenomena (morphophonemics and allophonics together, with a very heavy emphasis on morphophonemics), misses a great many relevant allophonic phenomena, and even some of the more prominent morphophonemic alternations. It has no treatment of the analysis of the regular English inflectional suffixes, that classic of beginning linguistic courses. Yet settling on a description of these facts is not an easy matter, being tied up in very complicated ways with other aspects of English phonology and morphology (see Zwicky (1975) for more discussion of these issues than anyone might want). Now I would give *SPE* high marks on coverage of the facts--it would be easy to cite much worse examples, including some from my own work--but there are still significant gaps. I am surprised that phonologists generally don't adopt the strategy of actually listing, ahead of time, all of the phenomena they believe might be relevant to their analyses.

Finally, I would like to repeat the prescription that linguists, and particularly phonologists, supply the assumptions that bridge the subparts of linguistic description and that connect linguistics to the allied disciplines. I don't think my 1970 discussion of ruki and exceptions is at all extraordinary in its failure to show how the proffered data are relevant to the analytic issue. Nor do I think that such potential lines of evidence should just be eschewed on the grounds that they're 'external'; as I argued at the beginning of this paper, I think phonological analysis needs all the help it can get. But it needs real underpinning, not cardboard props.

Notes

*This paper grows out of Zwicky (1981) and material prepared for a seminar on methodology and argumentation at the Ohio State University in the spring of 1981. It was originally presented at the University of Michigan in May 1981, as part of a series on evidence in phonology organized by Richard Rhodes and Peter Benson; I have not tampered much with its conversational tone. This is the version of 27 August 1981.

[1] Actually, these four segments represent a good many more. '/u/' stands for a short vowel phoneme and a long one; for /o/, which functions like /a + u/ in Sanskrit; and for /aw/, which functions like /a: + u/. '/i/' similarly stands for /i i: e ay/. '/r/' stands for syllabics, both short and long, as well as for a nonsyllabic retroflex segment. /k/ before /s/ is the product of neutralizations affecting all palatal and velar stops (/c c^h j j^h k k^h g g^h/) and certain instances of the fricatives /ṣ š/. /s/ remains after nasals, the vowels /a a:/, labials, dentals, and /ṭ/ (the neutralization product of ṭ ṭ^h ḍ ḍ^h/ and of the remaining instances of /ṣ š/); the liquid /l/ does not occur before /s/.

[2] Readers who know Sanskrit might wonder about **stem-initial** /s ~ ṣ/ alternations in compounds and prefixed forms; they are remarkably irregular. Kiparsky (1973:84-5) argues that in classical Sanskrit these alternations are to be described separately from the ruki phenomenon proper (in some cases the alternation appears even in non-ruki environments).

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Forestress and Afterstress*

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1. Introductory remarks. Of the many combinations of the form N+N, N'*s*+N, and Adj+N in English,[1] some have been classified as compound words, or compounds (***family tree, doctor's dilemma, black board***), others as phrases, or syntactic groups (*family affair, doctor's office, blackboard*). Aside from orthographic considerations, there are two main criteria for classification: (a) whether the combination functions as a word or as a phrase; and (b) whether the combination has primary stress on its first element or on its second.

Criterion (a), which relates the classification of combinations in English to a wider (though inexplicit) general theory of language structure, was favored by the great traditional grammarians of English. This approach treats as compound 'a combination of two or more words so as to function as one word, and a unit' (Jespersen 1942:sec. 8.1_1), 'a combination of two words forming a unit which is not identical with the combined forms or meanings of its elements' (Kruisinga 1932:sec. 1581), or 'vocables which, though felt and used as single words, are made up of two or more elements each of which may also be used as a separate word; (Zandvoort 1965:sec. 803). The approach is subject to the criticism that notions like **unit** are intolerably vague.

Criterion (b), which appeals to a putative symptom of wordhood vs. phrasehood in one language, was favored by American structuralist grammarians analyzing English. The position was clearly enunciated by Bloomfield (1933:228):

> ...whenever we hear lesser or least stress upon a word which would always show high stress in a phrase, we describe it as a compound-member: *ice-cream* [ˈajs-ˌkrijm] is a compound, but *ice cream* [ˈajs ˈkrijm] is a phrase, although there is no denotative difference of meaning.

2. History: largely structuralist. Approach (b) was elaborated, and further symptoms added, by Bloch and Trager (1942:66):[2]

> ...a **compound** is a word composed entirely of smaller words. The difference between a compound and a phrase (a syntactic construction involving two or more free forms) must be determined separately for each language; if no formal characteristics can be discussed for distinguishing between them, then the language has no compounds.
>
> In English, compounds differ from phrases in the phonemic modification of their components, in the kind of juncture between them, in the stress pattern, or in a combination of

> these features. Thus the compound *blackbird* differs from the phrase *black bird* only in stress; the compound *altogether* differs from the phrase *all together* in both stress and juncture; and the compound *gentleman* differs from the phrase *gentle man* in stress, juncture and modification of the second member from /man/ to /mən/.

Note that the only formal feature common to all three of their examples is stress.

In Trager and Smith (1951), the stress patterns are factored out as suprasegmental morphemes called **superfixes**; ´` is a word superfix, `´ and ^´ phrase superfixes illustrated in *Long Island* and *long island*, respectively. They treat the difference between the two stressings of *ice cream* as 'simply two different dialects' (73), but posit a 'shift morpheme' moving primary stress forward from the final constituent in a construction. The shift morpheme is seen in *I dón't know* and *Í don't know* as variants of *I don't knów*, and also in *kítchen sìnk* as a contrastive stressing of *kìtchen sínk* ('a fixture in the kitchen') or *kítchen sínk* ('an item in an inventory of items in the kitchen').

Both types of criteria have been reviewed by Marchand (1960:sec. 2.1), who maintains that stress is criterial for certain combinations, while the 'underlying concept'--the nature of the syntactic or semantic relationship between the elements in a combination--is a significant factor in others. Quirk et al. (1972:1040) consider prosody, lexicalization/productivity, semantics, and morphological properties all as relevant:

> It is usual to emphasize the distinction between the *word*, where convention and semantic interpretation fix a stress and rhythm which the individual cannot alter, and *connected speech*, where the disposition of stresses is subject to the speaker's will and the meaning he wishes to convey. There is much validity in this but it must not be pressed too far, since it depends on a much sharper distinction between phrases and (compound) words that English grammar and lexicology in fact warrant. It will not do to say that initial stress ...indicates compounds, and final stressing...the syntactic phrases of connected speech. We have seen compounds like *ˌdownˈstairs* which (despite similarity with phrases like *ˌdown the ˈstreet*) we would not wish to analyze as phrases. And, *ˌstill ˈlife* (in painting), which is usually stressed in BrE as though it was a phrase, shows that it is a compound in having a different plural (*still lifes*) from the simplex noun (*lives*)...So too there are initial-stressed phrases that linguists do not normally regard as compounds, since (as is not general in word formation...) we are as free to form such sequences as we are to form any other kind of syntactic unit:
>
> (1) The ˈstrawberry ˌpicking }
> The ˈcabbage ˌweeding } has gone well.

They go on to suggest that 'the stress distribution provides a firm basis for distinguishing not between compound and phrase but different underlying relations between the juxtaposed item', citing pairs like *ˈtoy ˌfactory* vs. *ˌtoy ˈfactory, ˈbull ˌfight* vs. *ˌbull ˈcalf, ˈFrench ˌteacher* vs. *ˌFrench ˈteacher,* and *ˈslate ˌquarry* vs. *ˌslate ˈroof.*

3. History: largely transformational. Nearly all transformational treatments of phrases and compounds, beginning with Lees (1960), follow Bloomfield in taking stress to be criterial. Thus, Lees limits his study of compounds to combinations with forestress, although he observes that

> It is possible that some transformation rules in the grammar differ solely in the kind of unitary stress pattern which they confer (in an as yet unspecified way) upon the transforms, for there are many cases of composites which seem to differ only in this one respect, as for example, *Mádison Strèet* vs. *Mâdison Ávenùe,* or *ápple càke* vs. *âpple píe.* Perhaps each individual morpheme is characterized by always taking in composition some one of a small number of (syntactic) junctures introduced into the sequence by the transformation itself and yielding then, by phonological rules, in the manner suggested by Chomsky, Halle, and Lukoff [1956], the appropriate stresses. This view is supported by the fact that, at least in the author's speech, all composites in *-street* and *-cake* are compounds, while all in *-avenue* and *-pie* are invariably nominal phrases. These favored junctures would then, presumably, be overridden by certain constructions, so that, e.g., *woman* and *doctor* could combine to yield *both* a compound *and* a nominal phrase, but from differing source-sentences by two different transformational rules, say:
>
> (2) a. The doctor is a woman. --> wôman dóctor
>
> b. The doctor is for a woman. --> wóman dòctor (120)

In an appendix (180-5), Lees reconsiders his earlier complete separation of forestressed compounds and afterstressed phrases, noting that (a) it treats some synonymous pairs with identical syntactic structure as nevertheless in contrast, (b) it fails to explain the contrast between afterstressed combinations like *young genius* and *child prodigy,* only the former having adjectival properties, and (c) it fails to give an account of the ambiguity of phrases like *legal document* and *logical fallacy.* Accordingly, Lees develops the ideas in the long quotation above, suggesting that compounding transformations might assign both forestress and afterstress, while the shift of elements from predicate to prenominal position invariably yields afterstress. He then gives lists of 12 types of afterstressed combinations paralleling some of the 49 types of forestressed combinations treated in the main body of the work.

This proposal by Lees, that compounding transformations assign stress pattern (or, equivalently, that stress assignment rules consider earlier stages in derivations), is developed further by several authors--by Lees himself in two 1970 articles that attempt to reduce the number of source types for compounds, by Gleitman and Gleitman (1970:ch. 3) in the context of a psycholinguistic investigation, and by Levi (1973), who is interested in the derivation of combinations like *electrical engineer,* parallel to *mining engineer* (Adj + N vs. N + N: 'My claim is that both the logical structure of these two NPs, and their derivations are precisely parallel, up to the point where certain compound-initial nouns are converted into derived surface adjectives' (334)). The significance of 'nonpredicate adjectives' like *electrical* in *electrical engineering* for transformational analyses of English was apparently first pointed out by Bolinger (1967).

Levi has explored such data in a number of other publications (1974, 1975, 1977, 1982), with a book-length presentation in 1978. She distinguishes (1978:1-8): 'complex nominals' from a number of other compound constructions--exocentric combinations, whether metaphoric (*ladyfinger*), synedochic (*razorback*), or coordinate (*participant-observer*); compound proper names like *Istanbul Hotel*; and adverbial compounds like *potential enemy*--and divides the complex nominals into three types:

(3) a. 'nominal compounds' like *apple cake* (forestressed N+N);
    b. 'nominalizations' like *presidential refusal* and *metal detection* (afterstressed Adj+N, forestressed N+N);
    c. nonpredicate adjective constructions like *musical clock* and *electrical engineering* (afterstressed Adj+N).

She does not address the stress question, however.

A survey of the literature on the semantics of (forestressed) nominal compounds is to be found in Zimmer (1971) (supplemented by Zimmer 1972b), where there is also a criticism of all **positive** characterizations of compounds (by a listing of types or by a listing of compounding rules) and some discussion, further developed in Zimmer (1972a), of a necessary condition for compounding, the existence of an 'appropriately classificatory' relation. Zimmer (1971) includes an appendix on afterstressed combinations, with criticism of Marchand's treatment. Zimmer observes that there is 'a great deal of dialect variation which is not compatible with the neat distinction [between **tranpositional derivation**, involving no addition of semantic elements and resulting in phrases, and semantic derivation, involving addition and resulting in compounds] that Marchand proposes' (C19), that some examples do not square with Marchand's distinction in any event, and that Marchand refers to 'implicit contrast' to save his analysis. Zimmer concludes:

> Given that there are a lot of idiosyncratic factors involved in the compound vs. nominal phrase distinction, it is probably

> still true that the relations typically embodied in nominal phrases are of a type rather different from what is found in most compounds...And compounds do seem to have a greater tendency to become idiomatized. However, it would appear that the condition of a relation's being "appropriately classificatory" applies to most nominal phrases as well as to compounds. (C19)

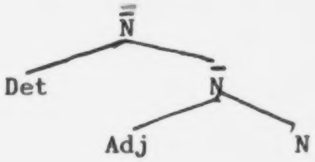
The Lees position, however developed or transmuted, involves transformational prediction of stress contours. Consequently it is at variance with restrictive theories about the relationship between syntax and phonology, which would require that only information available in syntactic surface structure can condition phonological rules (the Principle of Superficial Constraints in Phonology of Zwicky 1970). In fact, the description of combinations by Chomsky and Halle (1968:secs. 2.1, 3.9) adheres to a more restrictive theory: they assume that the stress differences correlate exactly with the distinction between compounds (which are Ns) and phrases (which are NPs), so that stress assignment rules need be sensitive only to the surface syntactic distinction between N and NP (plus some indication of exceptionality, for those combinations not subject to the *SPE* Compound Rule; see Chomsky and Halle 1968:156). This very Bloomfieldian analysis is also adopted by Halle and Keyser (1971:sec. 1.2). It is subject to the criticisms put forth by Lees and expanded on by Schmerling (1971), who concludes:

> It does seem to be the case that in some instances stress assignment is governed by the choice of head or attribute, in others by syntactic characteristics (whether the attributive has the superficial form of an adjective or a noun). There ought to be rules that capture these generalizations. In other cases stress assignment is an idosyncratic property of individual compounds and ought to be indicated in the lexicon as such. The fact that stress placement is sometimes predictable should not make us try to predict it always. (60-1)

A significant feature of the Chomsky/Halle analysis is that 'relative prominence tends to be preserved under embedding' (Liberman and Prince 1977:251), both for compounds and phrases. Both forestressed N+N combinations and afterstressed Adj+N combinations occur freely as constituents of larger constructions, and normally the relative stress levels are maintained: *whale* in *whale-oil* continues to be more heavily stressed than *oil* in an afterstressed compound like *whale-oil lamp*, and *American* in *American history* continues to be less heavily stressed than *history* in a forestressed compound like *American history teacher* (as it will in a syntactic combination like *teach American history*). The Chomsky/ Halle analysis generates (a potentially endless series of) numerical values for stress levels. Liberman and Prince replace this problematic feature by a system in which only relative prominence is assigned, but the essence of the *SPE* treatment is preserved: the Nuclear Stress Rule (afterstress) for phrasal categories, the Compound Stress Rule (forestress) for lexical categories.

4. Analysis. I will now assume, with essentially all of the writers cited so far, that there is an unmarked, 'normal' or expected, stressing for particular combinations. I will also assume that the relevant internal structure of NPs, that is to say, $\bar{\bar{N}}$s, is as follows:[3]

(4)



(An $\bar{\bar{N}}$ marked [+POSS] is one possibility for the Det position.) The unmarked stressing for the constituents of $\bar{N}$ or $\bar{\bar{N}}$ is then afterstress.

Three types of word-level constructs are at issue: N+N, N'*s*+N, and Adj+N. I will assume that all three types are syntactically Ns; all three will then be lexicalizable, and we can expect both productive, novel combinations and semantically specialized combinations. This assumption is not innocuous, at least in the case of N'*s*+N and Adj+N combinations, since formally identical combinations occur at the phrasal level: N'*s*+N constituting $\bar{\bar{N}}$, with N'*s* as a determiner; and Adj+N constituting $\bar{N}$. It seems clear that the unmarked stressing for N+N (*dinner table*) is forestress, but that for N of the shape N'*s*+N (*artist's model*), or Adj+N (*American history*) the unmarked stressing is the same as for $\bar{\bar{N}}$ or $\bar{N}$, respectively, namely afterstress.

The standard treatment of these latter two cases, the possessive and adjective constructions, is to assume that stress is assigned to them by the same principle that applies to $\bar{\bar{N}}$ and $\bar{N}$, indeed to assume that these combinations are instances of $\bar{\bar{N}}$ and $\bar{N}$. But $\bar{\bar{N}}$ and $\bar{N}$ do not freely occur in word-like units: an $\bar{\bar{N}}$ like *the girl* or an $\bar{N}$ like *many friends* is simply impossible as a constituent of an N. Rather, the only $\bar{\bar{N}}$-like or $\bar{N}$-like things serving as constituents of an N are those that also function an an N.

Indeed, this restriction on the combinations that occur as word-like units is one of Levi's (1977, 1978:sec.3.4) lines of evidence in favor of N as the dominating category. Her other arguments appeal to principles of affixation in English (the prefixes *post-, ex-, anti-,* and *non-* adjoin to simple nouns and to complex nominals but not to indisputable NPs; the same is true of the suffixes *-ist, -ian,* and *-(ic)al)*, the internal syntax of $\bar{\bar{N}}$s (predicating adjectives cannot intervene between the components of a complex nominal; complex nominals require a determiner, just like isolable singular common count nouns), and the fact that complex nominals are anaphoric islands (in the sense of Postal 1969).

The proposal is then that an Adj+N combination like *legal document* is ambiguous because it may be either a morphological combination, an N, or a syntactic combination, an $\bar{N}$. Much the same can be said for N'*s*+N combinations (although Levi classifies these all as $\bar{\bar{N}}$s): *an artist's model* is ambiguous between a reading in which *artist's model* is a morphological combination, an N, and one in which *an artist's* is the determiner in a syntactic combination, an $\bar{\bar{N}}$.

Notice now that the prediction of stress follows not from the category of a whole construct, but rather from the categories of its constituents:

I. [N+N] is stressed on its first constituent.

II. [N'*s*+N] and [Adj+N] are stressed on their second constituents.

In what follows I will explore genuine exceptions to these principles and additional regularities counter to them. I will treat the principles as default cases; they will assign stress pattern when nothing else does. For genuine exceptions a stress pattern will be associated with a particular combination, that is , it will be part of the lexical entry for that combination. The additional regularities will be of the same form as principles I and II, in that they will predict stress on the basis of the nature of the participating constituents. Thus I am pursuing the program advocated by Schmerling in the quotation in section 3 above.

The tack I am taking amounts to, first, a rejection of criterion (b) in section 1 above as a **definition** of the word/phrase distinction and, second, a sharpening of criterion (a): what is a word and what is a phrase in a language is determined by morphological and syntactic facts of that language; phonological properties can follow from this distinction but do not themselves determine it.

I begin with the larger group of cases, apparent exceptions to principle I. These have been catalogued by the traditional grammarians, in particular Poutsma (1914) and Kruisinga (1932), although their catalogues do not cover all the cases.

4.1. The branching condition. One well-known case requires an emendation of principle I. Forestressing is normal only in uniformally left-branching structures like *law requirement, law degree requirement* 'requirement for a law degree', and *constitutional law degree requirement* 'requirement for a degree in constitutional law'. But 'if at any stage of the compounding process the righthand element is itself a compound form, then this righthand member will assume the primary stress' (Liberman and Prince 1977:253, explicating the *SPE* analysis): *[law degree][language requirement]* has its primary stress on *language* rather than *law.* The required emendation is

I'. [N+N] is stressed on its first constituent if and only if its second constituent does not branch.

(see Liberman and Prince 1977:257 for an alternative statement). Principle II should then be stated as the general default case:

II'. Otherwise [X+N] is stressed on its second constitutent.

4.2. Constructions that are not compounds. Another class of cases comprises combinations that are not N+N--for instance, appositional constructions of the shape $\bar{\bar{N}}+\bar{\bar{N}}$, like *[we][the people]*, *[the lad][Robert Jones]*, and *[my son][the doctor]*, or number constructions of the shape $\bar{N}+\bar{N}$, like *four thousand two hundred.* These simply do not fall under principle I, but have their afterstress predicted by different principles (presumably, by something like Chomsky/Halle Nuclear Stress Rule). The same is true of nouns serving as quantifiers: the afterstressed *one hundred* and *two dozen handkerchiefs* contain instances of Q+N, not N+N, and afterstress is predicted by Principle II'.

4.3. Proper noun cases. Now consider the following types, all normally afterstressed:

1. Proper N = Common N + Common N: *City Hall, University College, River City, TV Guide, Radio Times.*
2. Proper N = Proper N + Common N: *the Savoy Hotel, Victoria Station, Buckingham Palace, Iowa City, Madison Avenue, David Hume Tower, Oxford University, Eliot Hall.*
3. Proper N = Common N + Proper N: *the river Rhine, Mount Fuji, Hotel Ritz, Lake Ontario, King Edward, Aunt Jane.*
4. Proper N = Identifier + Proper N: *Mr. Jones, Mrs. Dalloway.*
5. Proper N = Proper N + Identifier: *Arnold Junior, Jones Minor.*
6. Proper N = Proper N + Proper N: *Ann-Margret* (first name); *Longuet-Higgins* (family name); *John Jones* (full name); *Cadillac Riviera; Cambridge, England; Broadway, New York City.*
7. Proper N = Numeral + Proper N: *102 Broadway, 14 January.*
8. Proper N = Proper N + Numeral: *September 16th; September 1973; Columbus 14.*
9. Common N = Proper N + Common N: *Dole pineapple, Vietnam war, Cadillac car, Chicago blues, Mumm champagne, Steinway piano, Gladstone bag, Ceylon tea, Bengal tiger, Cambridge education, O'Brian potatoes, April showers.*
10. Common N = Common N + Proper N: *steak Diane, potatoes O'Brian.*

Evidently, a compound that **is** a proper noun (regardless of its constituents) or **contains** proper nouns (regardless of whether or not it is a proper noun) is normally afterstressed. Such compounds should be exempted from principle I:

I". $[_{\substack{N\\ [-PROP]}}\ \ N_{[-PROP]}\ \ N_{[-PROP]}\ ]$ is stressed on its first constituent if and only if its second constituent does not branch.

II". Otherwise, [X+N] is stressed on its second constituent.

4.4. Exceptional forestressing in proper nouns. There is another level of complexity to principle I", since a few proper N+N compounds are forestressed. Compounds ending in *street* are regularly forestressed (*Fifth Street, High Street*), as are those ending in *town (Adamstown, Circle Town), day (Veterans Day), brothers* or *sisters (Brooks Brothers, the Andrews Sisters), club (Kiwanis Club),* and a number of other specific words. In British (but not American) English, compounds ending in *college (King's College,* Cambridge; *New College*, Oxford) are often forestressed. These regular, but somewhat dialect-particular, facts hold only for compounds that are proper nouns: *Town Street* and *California Town* are forestressed, but *a town street* and *a California town* have final stress. That is, we have a subregularity of the form

B. For certain specific nouns N*, $_{\substack{N \\ {[+\mathrm{PROP}]}}}[\; N + N^* \;]$ is stressed on its first constituent.

and this principle B takes precedence over principle I".

There are also some combinations which as wholes constitute lexical exceptions to I": *Brazil nut, Liberty Bell, Pullman car,* for instance, must all be listed as forestressed, since neither principle B nor principle I" would predict this stressing. What we want to say here is that for some lexical N+N combinations, the lexical entry indicates which N is stressed; lexical marking for this feature will then block the application of any rules predicting the feature, and principle II" will (correctly) fail to stress the second N.

A. There are some lexical entries of the form $[\; \underset{[+\mathrm{PROP}]}{\acute{N}} \; + N]$

Note that principle I" is a kind of exception clause to the more general principle II". A and B are then, in effect, exception clauses to an exception clause.

4.5. Exceptional afterstressing with semantic concomitants. Beyond the exceptional behavior of proper N combinations, there are some further subregularities in the class of unexpectedly afterstressed compounds. These subregularities involve the semantic relationship between the two Ns in a compound. Consider, for example, the stressing of *silver bóx, wood chést,* and *bead cúrtain.* Here we have relatively clear cases of constructions in which the first N is a noun of **material**: a silver box is one composed of the material silver, and a bead curtain is one composed of the material beads. I believe that all semantically transparent combinations in which N_1 is a noun of material (and so have the paraphrase 'N_2 composed of the material N_1(s)') are afterstressed, and that this stress pattern is automatically extended to novel combinations of this type: *silver chair, nylon curtain, malachite ewer,* and so on will all be afterstressed, despite the fact that they are common nouns composed of two common nouns.

It might be proposed that the first word in these combinations is an Adj rather than N.[4] This category assignment would automatically predict afterstress by principle II", but it is hard to defend on syntactic or morphological grounds. And, as we shall see shortly, it requires that an enormous number of nouns be convertible to adjectives in very restricted, and sometimes lexically idiosyncratic, contexts. We shall also see that there are several additional types of compound-word formation with exceptional afterstress, and that classifying their first words as adjectives is tantamount to permitting all concrete nouns to be used as adjectives.

Material-noun constructions like *wood chést* contrast with a number of other N+N combinations, some of them involving the same words: *wóod chest* 'chest for (storing) wood', *cóffee cake* 'cake (to be eaten) with coffee', *hérb bread* 'bread with herbs (in it)', *póppy-seed roll* 'roll with poppy-seeds (on it)'.

There is a nearly minimal contrast between **material**-noun combinations and **source**-noun combinations like *whéat flour* 'flour (made) from wheat' and *cóaltar product* 'product (made) from coaltar'. The real-world contrast between something composed of a material and something made out of, or from, a substance is very slight, and there is considerable variation in the stressing of compounds describing sources: forestressed *bean curd, soy sauce, orange juice, garlic powder,* but afterstressed *cherry brandy, strawberry jam, chocolate pudding.* A large number of source-noun combinations have forestress for some speakers and afterstress for others; I have heard this variation for *chocolate cake* and *beef pie* (for Lees, combinations with *cake* are forestressed, those with *pie* afterstressed, but in these two particular combinations I have the opposite stressings), as well as for *chicken soup, onion soup, corn meal, rye bread, mango chutney, and chicken curry.* It may be that if you originally conceive of N_1 as the 'main ingredient' in the product, you will use afterstress; forestress would be used otherwise (principle I" is the default case for common-noun compounds), as well as for potential material-noun compounds you have actually heard with forestress. If this is so, then there is a general principle

C. $[N_1+N_2]$ 'N2 composed of the material N_1(s)' is stressed on N_2.

(taking precedence over I") and there are also specific lexical exceptions to C, which can be lumped together with the exceptions in A--

A'. There are lexical entries of the form [Ń+N].

The pattern we have seen for material-noun combinations is repeated for several other types of compounds, in particular possessive/locative compounds like *university lawyer, church steeple, faculty senate, kitchen table, morning appointment,* and *Christmas morning,* and attributive compounds like *student activist, child prodigy,* and *woman doctor.* Afterstress is the norm here, and it would seem preposterous to me to argue in such examples that the first word is an Adj rather than a N. There are lexicalized forestressed examples--possessive/locative compounds like *cloverleaf* and *garden party* and attributive compounds like *girlfriend*--and there are some N_2s that seem to be generally associated with forestress, like *man* in the attributive compounds *ape man, elephant man,* and *gorilla man.* But the big regularity is that possessive/locative compounds and attributive compounds, like compounds of material, are afterstressed, and this is the stress pattern that extends to novel combinations like *province assembly, parlor bidet,* and *gorilla attendant* 'attendant who is a gorilla'.

As in the case of compounds of material, it is not particularly easy to specify the semantics associated with the exceptionally afterstressed combinations in possessive/locative and attributive compounds. Still, it seems clear that, as was implicit in Lees' discussion of attributive *woman doctor* versus nonattributive *woman doctor*, if you can characterize the meaning of certain combinations you know which stress pattern they get.

A further complexity is that there are some afterstressed compounds that do not fall under any of the generalizations so far discussed: *picture window, household cleanser, life annuity, peasoup fog, return ticket, backseat driver, group therapy, underarm deodorant,* and a moderate number of others. These I assume have lexicalized stress. For them I extend A':

A". There are some lexical entries of the form [$\acute{N}$+N] and some of the form [N+$\acute{N}$].

Finally, a similar extension of B may also be in order, given the large number of afterstressed compounds with the noun *student* as their first member: for instance, *student affairs/expedition/discipline/rule/vote/plan/power/revolt/grant/teaching/training*. The semantic range is considerable here, and I see no way of grouping these compounds with the three semantic classes considered above. A natural solution would be simply to say that compounds with first constituent *student* regularly take afterstress; some other nouns, among them *faculty* and *government,* seem to fix stress in the same fashion as *student.*

Before entering a new arena of complexities, I will summarize the analysis so far.

A". There are some lexical entries of the form [$\acute{N}$+N] and some of the form [N+$\acute{N}$]; for the remainder, the position of stress is predictable.

B'. For certain specific nouns N_2 (e.g., *street*), $\underset{[+PROP]}{N}$ $[N_1+N_2]$ is stressed on its first constituent; and for certain specific nouns N_1 (e.g., *student*), $\underset{[-PROP]}{N}$ $[N_1+N_2]$ is stressed on its second constituent.

C'. $[N_1+N_2]$ with stress on its second constituent is associated with[5] one of the meanings 'N_2 composed of the material N_1(s)' *(iron bar)* 'N_2 belonging to N_1' *(government commission)*, 'N_2 located in N_1' *(bedroom television set)*, 'N_2 taking place in N_1' *(summer holiday)*, or 'N_2 who is a N_1' *(bachelor uncle)*.

These three principles describe the cases in which the position of stress is determined by the individual nouns involved or by the meaning of the combination. A" notes the existence of completely idiosyncratic stressings; these of course take precedence over all general principles, including those in B' and C'. Principle B' refers to specific words and takes precedence over the more general semantic principle C'. Principles B' and C' take precedence over the principles referring to morphological structure, which I summarized at the end of section 4.3 above.

4.6. A weakening of the branching condition. In my discussion above of the branching condition (section 4.1), I maintained that forestressing was normal only in uniformly left-branching structures. That is true, but forestressing is often awkward even in these structures. *Law degree requirement* is what principle I" predicts in the way of relative stress levels if the compound is parsed *[[law degree] requirement]*. This is certainly a possible stressing, but *law degree requirement* is also a possible (and perhaps even more natural) noncontrastive stressing. Principle I" similarly predicts only *[[[constitutional law] degree] requirement]*, but primary stress on *requirement* or even *degree--constitutional law degree requirement*--is not unnatural. In general, when the first constituent in an N+N combination branches and the second does not, there is more than one noncontrastive stressing. This effect can be obtained if I" only optionally stresses a branching first constituent. I" must still obligatorily stress the first constituent in cases like *law degree*. The reformulation:

I*. If the second constituent in $\underset{[-PROP]}{N}[\ \underset{[-PROP]}{N} + \underset{[-PROP]}{N}\ ]$ does not branch, then stress the first constituent--obligatorily if the first constituent does not branch, optionally otherwise.

Afterstressed versions seem to have become lexicalized in some of these cases: *back seat driver* (compare *motorcycle driver*) and *ball point pen* (compare *fountain pen*), for instance.

4.7. The rhythm rule. There is still another alternation between forestress and afterstress in compounds. Schmerling (1971:63-4) mentions an alternation between afterstress in predicate compound adjectives *((It's) brand new)* and forestress when these compound adjectives appear in prenominal position *((a) brand new car)*. The phenomenon has been known for some time; a summary in Bolinger (1965) indicates that 'Jespersen credits James Elphiston with having noted in 1765 the rhythmic shift of stress in words like *almost, forthwith, therein,* for example, *the laws written thereín* versus *the laws thérein written'* (139) and lists many examples. Kim (1978:176), citing *(just) fourtéen* versus *fóurteen (shillings)* and *(quite) unknówn* versus *únknown (land)*, refers the reader to Daniel Jones; Jones (1960:252-4) lists a number of examples, some involving monomorphemic proper nouns, as in *Wáterloo (station)* versus *(the train for) Waterlóo.*

It should be clear from these few examples that the alternations are in no way limited to compounds, though they do affect afterstressed compounds like *Ohio State* and *cherry jam*, which shift (optionally, but preferably) to forestress in such phrases as *the Ohio State team* and *cherry jam quiche.* There is no shift in the other direction, so we are dealing here with an optional retraction, or fronting, of stress. The recent literature on 'metrical phonology' has been much taken up with this Rhythm Rule, as it has come to be known; see, inter alia, Liberman and Prince (1977:255, 309-23), Kiparsky (1979:424-8), Prince (1983:31-46). For my purposes, the Rhythm Rule is simply a (rule-governed) perturbation in the pattern of compound stressing already discussed.

4.8. Contrast and context. Another sort of perturbation in the stress patterns of compounds arises from contrastive stress, as in *Apple cáke is more interesting than apple pie.* Here *apple cake* has afterstress rather than the forestress predicted by the principles discussed above. In *Ápple pie is more American than quince pie, apple pie* has forestress rather than the afterstress the principles predict. What I want to say about such cases is that in general either element of a compound can be stressed, but that the placement of stress other than by the principles conveys that the stressed constituent has some special pragmatic value in the context (linguistic or otherwise). This treatment predicts, correctly, that contrastive stressing of parts of semantically somewhat opaque compounds like *mud pie* and *boy wonder* will be rather bizarre, since it will be hard for a listener to work out what could be being conveyed by a form like *mud píe* or *bóy wonder.*

5. Final remarks. My proposals have built on the assumption that the distinction between compounds and phrases is to be made on syntactic and morphological grounds, though the distinction has considerable phonological consequences. I have further assumed that a particular compound has, for any given speaker, one basic stress pattern, that the basic stress pattern is either associated lexically with the compound or predicted by rule, and that other stressings are either themselves predicted by rule (from the linguistic context) or are freely chosen by speakers (in which case a stressing has special pragmatic value when it is not the one predicted by rule). The rules in question refer to grammatical categories, to morphological structure, to specific words of English, and to (rather unspecific) meanings associated with the construction. The rules apply in sequence in such a way that more specific or exceptional rules take precedence over (and block) more general ones. Aparently, we need at least the ability to state exceptions to exceptions, and possibly more than that. In addition, by trying to state **general** principles I was led to abandon the (structuralist and orthodox generative) position that forestress is the norm for all compounds. In this analysis, forestress is the expected case only for certain classes of compounds, those covered by the first clause of principle B' or by principle I*.

In its reference to general principles, much in the style of other generative proposals, this analysis might seem to go against the spirit of Bolinger's (1958, 1972) stress proposals, in which stress (on sentences or on compound words) is assigned by speakers according to what their purposes are in uttering those sentences or words and according to the information content of the words involved. I have emphasized the conventional aspects of the system for compounds, but this does not mean that considerable latitude is not available to speakers. I am inclined to think that this latitude is much greater for phrases and sentences than for compounds, but even for compounds there is some freedom.

I am not suggesting that the rules I've referred to are all utterly arbitrary, without communicative rationale. Some aspects of the system have natural interpretations in terms of **implicit contrast**. The idea here is that certain items are stressed because they are salient; they are in contrast with a number of items from a large set, whereas the less stressed items with which they occur are not, usually serving as unmarked representatives of a whole class of items. For Marchand (1960:sec. 2.1), implicit contrast explains forestress in *bóokstòre, hárdware stòre,* and other compounds with the unmarked head noun *store*, as opposed to hârdware empórium, bôok wárehouse, and the like; the less stressed *store* is the unmarked (and semantically least specified) representative of a class of nouns denoting commercial buildings. Forestress in *Smíth Strèet* and other proper street names with *street* in them, versus afterstress in *Smîth Ávenue/Pláce/Térrace/Láne/Wáy/Círcle,* could be explained in a similar way, with *street* as the unmarked (and semantically least specified) representative of a class of nouns denoting thoroughfares. The forestress of *Brazíl nùt*, as opposed to the afterstress of most combinations with proper nouns as parts, could be explained as an implicit contrast of *Brazil* to the first elements of *peanut, pistachio nut, hazelnut, macadamia nut*, etc., all of which have forestress by regular principles. As a final example, afterstress in combinations with *student* as their first element might be attributed to the occurrence of such combinations in contexts where various aspects of students are under consideration, so that only the second element is salient.

Implicit contrast is (part of) a plausible account of the invention of, or historical change in, certain forms. The case for direct reference to implicit contrast in a synchronic account of English is less clear. Perhaps the position of stress in combinations with *street* is simply learned (rather than calculated from other facts about the language and the context of use), and must be indicated as a property of the word *street* in modern English, as in principle B'. Similarly, the fact that *Brazil nut* is forestressed might also be learned (rather than calculated from other facts about the language and context of use), and must be listed as an exception in a description of modern English, as in principle A".

The larger lesson, on which I do not think Bolinger and I disagree, is that speakers of a language must **both** be able to induce (and behave according to) general principles **and also** have the freedom to deploy linguistic resources strategically. Where we disagree is on the extent of the linguistic conventions at work in one case, the stressing of compounds in English.

Notes

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[1] The examples that follow are nearly all nominals, but my discussion can be extended to parallel adjectival and verbal constructions.

[2] Bloch and Trager, and nearly all later American writers on the subject of stress levels in English (including generative phonologists), employ a four-level transcription: ´ primary, ^ secondary, and ` tertiary, with unmarked syllables understood as weak. British linguists (following Daniel Jones) and Bloomfield transcribe only three levels: ˈprimary and ˌsecondary, with unmarked syllables understood as weak. Forestressed (word-like) combinations are ´` in American transcription, ˈˌ in British; afterstressed (phrase-like) combinations include `´ and ^´ in American, ˌˈ and ˈˈ in British.

[3] This internal structure is considerably less complex, and one bar level smaller than, the proposal of Jackendoff 1977. These simplifications do not affect the points at issue here.

[4] There are a few nouns that clearly have developed adjectival uses for some speakers: *fun* in *a (really) fun time* and *monster* in *a (really) monster billboard.*

[5] I have deliberately stated this principle in such a way that the direction of determination is not settled. It could be read either as saying that if you want to express one of these meanings, choose afterstress, or as saying that if you chose afterstress, you express one of these meanings. All that it says, however, is that these meanings and this bit of form are regularly associated with one another.

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The Principle of Phonology-Free Syntax: Introductory Remarks*

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0. **Introduction.** The thesis we examine here is that the phonological rules and the syntactic rules in the grammar of a natural language work independently, and that all the linguists who have proposed some kind of "interpenetration" between the two domains have been in some degree mistaken. We are interested in articulating the strongest version of this informally stated position that can be convincingly maintained, and in conducting a critical examination of essentially all the linguistic literature we are aware of that contains arguments against our position.

Why we think it is important to do this will be explained in the next few sections, but first we must state more exactly what it is that we oppose.

The simplest explication of what the syntactic and phonological parts of a grammar are supposed to do would say that the syntactic component determines the order in which words may be placed in sentences and the grammatical structures associated with particular orders and combinations of words, and the phonological component determines what pronunciations are associated with particular structured sequences of words that the syntax says are well-formed. Although we think this simple explication is basically correct, the trouble with it is that it makes our position sound like a truism, as if no one could possibly disagree with it. But in fact dozens of linguists have disagreed with it, especially since interest in the precise specification of the form of grammars and the interaction of their rules first became a dominant feature of linguistics in the late fifties, and hundreds of descriptive problems have been exhibited whose solutions seem at first to involve violations of our thesis.

The problematic classes of data we are referring to are those that suggest that facts about how a word is pronounced are influencing the operation of the rules that determine grammaticality. More technically, they suggest that certain syntactic rules have to make reference to properties of linguistic units that receive their interpretation in terms of phonetic predicates. We wish to argue that in such cases, appearances are always misleading, and in fact no syntactic rule ever refers to a phonetically defined property.

Even when our view is expressed in these slightly more technical terms, it may sound rather self-evident. Katz and Bever (1976, 28n), for instance, suggest that phonetic conditioning of deletion rules ought to be ruled out in principle as a matter of philosophy of science:

> ...there should be meta-principles that determine the kinds of empirical events a formal structure in the grammar can be associated with. For example, it might be claimed that semantic correspondence principles can only connect grammatical formalisms to language universal cognitive structures, while phonological correspondence principles must often link grammatical formalisms to language specific articulatory configurations. Further, there ought to be constraints that determine conditions under which the same formal structures can be referred to by different kinds of correspondence principles. For instance, it would clearly be absurd if one principle connects ellipsis to the operation of erasure transformations as in most discussion, but another principle allowed mapping rules that correlate phonetic structures with physiological properties of the vocal tract to apply prior to such erasures.

Yet it is not the case that such "clearly absurd" practices as assigning phonetic structure like intonation contours at a derivational stage that precedes the application of deletion transformations have seemed absurd to everyone. Bresnan (1971), Langacker (1970), and Pope (1971) all argue for analyses that involve exactly this kind of interpenetration of syntax and phonology, while maintaining that deletion is a purely syntactic matter. It is our intention to examine the arguments and evidence that lead to such analyses, and to formulate the closest empirically supportable approach to the view that Katz and Bever take on aprioristic grounds.

In this article we make our main proposals explicit, locate them within the larger fabric of linguistic theory and metatheory, and sketch our strategy for defending them. Section 1 specifies that we are investigating the theory of grammars, not a theory of the linguistic activities of individuals or groups; the enterprise is linguistic in a narrow sense, not psycholinguistic or sociolinguistic. Section 2 introduces the *interface program* for the theory of grammar, within which our specific proposals about the interaction of syntax and phonology are situated. According to the interface program, a grammar is composed of a number of autonomous components, interacting with one another in limited ways. In the course of this discussion we state both the hypothesis that is our main object of interest, the Principle of Phonology-Free Syntax (PPFS), and also an important related hypothesis, the Principle of Superficial Constraints in Phonology.

Section 3 examines putative counterexamples to the PPFS. We first sketch the set of components we assume in addition to syntax and phonology. Fleshing out the idea that syntax and phonology are independent of one another leads us to propose a fairly rich collection of components that can be said to lie "between" syntax and phonology. And finally we provide a taxonomy of apparent violations of the PPFS.

1. **Languages, grammars, and speakers.** For the most part, we are following a large corpus of assumptions about linguistic analysis and theory that has emerged from a quarter century of generative grammatical work and the long tradition of language study preceding it, and we have little to say about metatheoretical issues like the relations between linguistics and the psychology of language. However, we are clearly

presupposing a great deal already in speaking of "grammars," "languages," "rules," and so on; we therefore make a few remarks of a methodological nature here.

To begin with, we must make it clear that we do not regard the study of human language as identical or reducible to the study of the organism that uses it. A straightforward reading of some of the statements of generative grammarians who have talked about "the rules of mental computation" (Chomsky and Lasnik 1977) and "the biology of grammars" (Lightfoot 1982) might suggest that not everyone makes such a distinction, but we believe that in practice virtually every serious student of linguistics does and must make it.

It is commonplace to agree that properties of the human organism such as its striking limitations of short-term memory or its susceptibility to speech production errors must be omitted from the idealized model of human behavior relative to which we evaluate linguistic theories. A theory of English grammar and semantics that characterizes (1) as grammatical, and true of the sequence "85327," is not generally taken to be false simply by virtue of the fact that English speakers appear bewildered when they are confronted with (1). This, if it is accepted, is enough to establish that there can be facts about what speakers do with their languages that are not facts about those languages themselves.

(1) The 7 follows the 2 that the 3 that the 5 that the 8 precedes precedes precedes.

It is, of course, quite difficult to tell from raw data of acceptability whether we have hit upon an indication that some rule of grammar is in effect or whether we have discovered some regularity in what the speakers of the language actually do in certain situations. But if we keep very clearly in mind what we mean by the terms "language," "grammar," and "speaker," though there will still be occasions on which we are uncertain about matters of fact, we will at least not be tempted into the incoherence that results from failing to distinguish the study of languages from the study of language users.

A language is a specified collection of objects (sentences), each of which is a structured sequence of other objects (words) and each of which has associated phonological and semantic properties. A grammar is some algebraic construct interpretable as a definition of such a collection. A grammar, in the broadest sense, constitutes a theory of the logic of the relation between the meanings and the syntactic and phonological forms of the expressions of the language. Like any theory, a grammar is not something that can be located in time or space. And this is all the more true of a language, since it exists only as the collection whose membership is defined by a particular grammar.

Speakers, however, exist in space and time. They have lifespans, sizes, birthdays, whims, beliefs, and imperfections. It ought to be very clear, therefore, when we have stopped talking about the abstract system of a language or a grammar and begun talking about the speakers of a language and what they do. But in fact many proposals have been advanced in linguistics that involve a failure to make this distinction. Perhaps the most notable is the development of the theory of "variable rules" by Labov (1970, sec. 2). If a speaker of a language in which the copula is optionally omissible chooses to omit it in 63% of cases when talking to a stranger and in 95% of cases when talking to friends, that is a potentially interesting fact about the speaker's interaction patterns, but it is not a fact about the language or the grammar in our terms, and cannot be. It concerns a speaker who interacts with other people at specifiable times in definite locations and chooses one alternant rather than another with some determinate frequency.

Bickerton (1971) and Gazdar (1976), among others, have correctly criticized the theory of "variable rules" for building such notions into the grammar. The point here is *not* that linguistic variation lacks system or structure, or that theories of variation are impossible; rather, the claim is that several distinct, but interlocking, theories are needed if we are to make sense of what happens when people talk.

The reason we stress the distinction between grammars and speakers at this point is that important decisions made below will depend on it. In particular, we will need to draw a distinction between *rules* of grammar and *tendencies* in dealing with a wide variety of sets of facts; and we will need to distinguish rules *of grammar* from other regularities in the *linguistic practices* of speakers.

The statement of a rule of grammar will be algebraic, not statistical, and will concern the definition of abstract objects that have no temporal or spatial existence. The statement of a tendency will have the exactly converse properties, being a statistical statement about actual language users in real situations. The statement of a linguistic practice might be statistical or algebraic, but in either case it requires essential reference to situations of utterance or to the intentions of interactants, usually to both; see Morgan (1978) and Green (1982) for arguments that statements about linguistic practices should be distinguished from rules of grammar.

Consider, to illustrate these points further, the influence of the unlikely category of chronological age on grammatical agreement. Consider first the case of Hindi. As the age of a person increases, it gets more and more likely that others will refer to that person by means of the plural pronoun *wee* rather than the singular pronoun *woo* in Hindi. But this turns out to be because chronological age is (in general) correlated with respect, in the sense that greater respect (in the special linguistically relevant sense at least) is shown to the old than the young within the Hindi-speaking culture. The grammatical device of using plural concord features is exploited in Hindi as a kind of surrogate honorific system.

We would say that the correlation between the age of a person and reference to that person by means of a plural pronoun represents a tendency, not a rule (because the regularity is statistical), and a linguistic practice, not a rule of grammar (because a contextual factor, the age of the person referred to, is a term in the regularity, and because an intention on the part of the speaker, to express respect for the person referred to, is a condition on the choice of pronoun). The rules of grammar involved, for example, the rule of subject-verb agreement, are concerned with definite, nonstatistical matters like whether the features on the verb match those on the subject NP, and nobody's age affects them at all. The grammar of Hindi specifies only that the two pronouns are among those available in the language, and that particular pronouns require agreeing forms elsewhere in sentences.

It is instructive to compare this situation with a related one in Achenese (spoken in Indonesia; see Lawler 1977). In Achenese, a verb takes a subject agreement inflection determined partly by whether the referent of the subject NP in question is younger or older than the speaker. While the determination of a person's chronological age is an empirical matter, of course, the grammar of Achenese is perfectly clear and definite: if the subject NP in a clause is a pronoun from the "older than speaker" set, only the "older than speaker" verb agreement inflection is grammatical, and correspondingly for the "younger than speaker" set. With nonpronominal subject NPs, the verbal inflection used is the one appropriate to the pronoun one would use to refer to the same entity (a choice that a communicatively competent speaker will base on chronological age insofar as the requisite data is available). But there is no tendency for age of a person to affect verbal inflection in sentences mentioning that person. Instead, the grammatical rule of subject-verb agreement, which is precise and nonstatistical, refers to a grammatical category which, as a matter of linguistic practice, is employed in a way that relates directly to chronological age.

2. **The interface program.**[1] Our model of syntax-phonology relations derives from a set of more general assumptions about the nature of language structure (and therefore also about the nature of grammars) that are familiar from the work of Chomsky. Hale, Jeanne, and Platero (1977) provide a convenient summary of what they term the Autonomous Systems view of language structure: "According to this view, language consists of a number of distinct systems, each possessing inherent principles of organization that are essentially independent of factors relating to any other linguistic system or to extralinguistic considerations" (379). We perceive three distinguishable assumptions here, and although Hale et al. speak about "language," the assumptions seem to us to be about the form grammars must have if they are not to misrepresent the complexity of language.

The first assumption is of *modularity*: a grammar consists of a number of modules; we shall refer to these as *components*.

The second assumption is that these components are *nonuniform*, distinct from one another in the sense that the representations and internal organization appropriate for one component in a grammar will in general be different from the representations and internal organization appropriate for another. We will make the standard assumption that each component functions to relate a small number of types (usually two) of linguistic representations, which we will call its *terminal representations*.

The third assumption is that each component is *autonomous*, independent of all the others, in the sense that aspects of one component will not depend upon factors appropriate only to another. What this assumption means for grammars is that rules in one component of a grammar cannot be contingent upon representations, rules, or rule operations available only in another component. Still, the components must be related to one another in some fashion. Assuming that the components are autonomous restricts these interactions between (or among) components to mediation via their terminal representations, which then serve as interfaces between components.

The assumptions of modularity, nonuniformity, and autonomy characterize what we will term the *interface program* (IP) for grammatical theory. As a research program, the IP has implications extending well beyond the question of syntax-phonology interactions. It should not in our view be regarded as highly controversial. Much theorizing about the nature of grammar in the past half-century has implicitly incorporated some version of the IP.

2.1. **Rejections of the IP.** We should make it clear, however, that the application of the IP in the area of syntax-phonology interactions has been challenged on many occasions by linguists working in a wide range of different frameworks. Baker and Brame (1972, 54) raise the matter rather tentatively:

> It is conceivable that the Aspects theory is incorrect in maintaining a strict separation between syntactic rules on the one hand vs. morphological and phonological on the other.[2]

Hall and Hall (1970, 49) regard it as clear that as early as 1970 linguists had found empirical reasons for questioning the separability of syntax and phonology (though they cite no references):

> In generative-transformational grammar, morphophonemic rules are considered low level rules which are applied only after the entire cycle of syntactic derivation. However, recently, problems in the handling of data from various languages have required solutions which call into question the strict hierarchical ordering of rules.

Hudson (1976, 115) goes yet further, implying that regularities in grammar whose statement violates the autonomy of the syntactic and phonological components are quite commonplace:

> Interlevel regularities are very easy to find, and can link any pair of levels.

And other writers have gone much further, rejecting the IP quite categorically. Thus Hetzron (1972, 251-2) summarizes the main thesis of his paper in these terms:

> ...there are syntactic rules which must apply *after* some phonological information has become available. ...[T]here is no clearcut boundary between syntax and phonology. There exists a certain amount of osmosis between the two domains.

And similarly, Awbery (1975, 24) argues that

> The interface model [is] inadequate. An interlocking model is required which will allow phonological rules to reach further back in the derivation and mix with purely syntactic rules. The syntactic and phonological components cannot, on this view be neatly separated out. Instead there is a transition zone in the derivation where both syntactic and phonological rules are relevant.

Tegey (1975, 571) is just as explicit in his claims:

> ...a strict separation of phonological from syntactic processes is not possible. In fact,...the usual assumptions of current linguistic theory that phonological processes apply after syntactic ones and that syntactic (transformational) rules need make no reference to phonological information cannot be maintained.

Rivero and Walker (1976, 100) speak in strikingly similar terms:

> Standard generative approaches to the structure of a grammar require that all syntactic operations take place before the application of any phonological rules and that phonological considerations do not constrain transformations. Evidence has accumulated, however, to show that this is too strong a restriction on syntactic rules. Syntax utilizes information created by the rules of the phonological component.

An even more extreme claim is that of R. Lakoff (1974, XVIII-40). She asserts that in the theory she calls "generative semantics":

> Very simply, there is no separation of levels: a single, highly abstract, underlying structure underlies the semantics, the syntax, and the phonology, and further, syntactic information may be used in the statement of phonological or semantic rules, and conversely.

And this undifferentiated theory of rule interaction has by no means seemed as undesirable to everyone as it does to us. Traugott (1977, 90), for instance, appears to regard the position Lakoff takes as both desirable and uncontroversially established as correct:

> Particularly promising for pidgin and creole studies is the fact that, in keeping with some of the most recent work in linguistics, dynamic wave theory is based on a theory of language that insists that the structures of language can themselves not be forced into totally discrete categories. Just as no absolute boundaries exist between a trade jargon and a pidgin, none exist between semantics, syntax, phonology, and lexicon.

2.2. **Expressive power.** Views in which no demarcation at all is accepted between (say) the syntactic and phonological components of a grammar are relatively far from the center of the spectrum (though not by any means uncommon; we can quote many others in connection with specific issues relating to the syntax-phonology interface). In general, however, it is clear enough why there have been moves toward abandoning autonomy assumptions. Autonomy assumptions are a widely accepted way of restricting the expressive power of grammars (a topic we return to in section 2.4.3 below), and thus natural candidates for being relaxed when ways are sought to extend such expressive power in the face of empirical evidence that cannot be otherwise accommodated.

A simple example of a move of this sort is the relaxing of assumptions about the syntactic and semantic components that introduced the variety of transformational generative grammatical theory known as the Extended Standard Theory. Active-passive pairs like *Many arrows didn't hit the target* and *The target wasn't hit by many arrows* were perceived to have different understandings. The basic semantic roles of *arrows* and *target* were unchanged, but the relative scope of the quantifier and the negation element seemed to be different. Therefore, relaxing the then-current autonomy assumption that permitted only the deep structure to be input to the semantic rules, it was proposed that the deep structure and the surface structure should both be scanned by semantic rules (see Chomsky 1972a, 103-6). The analogous relaxing of autonomy within generative semantics was the introduction of derivational constraints sensitive to both deep and surface structure (G. Lakoff 1971, sec. 2). In both cases, no a priori undesirable weakening of linguistic theory would attend the relaxing of autonomy assumptions if the access to different levels possessed by different rules could be shown to be prescribed on a universal basis; but in fact both Chomsky and Lakoff based their arguments entirely on English facts, so in practice, though not in principle, their proposals are examples of theory-weakening through the relaxation of autonomy assumptions.[3]

Given the possibility of increasing expressive power by removing autonomy restrictions, it is possible to regard permeability of the syntax-phonology dividing line as an advantage of any theory that exhibits it. And, indeed, we find Huddleston (1973, 353) criticizing stratificational grammar, which adheres to the IP and entails a very rigid dividing line between syntax and phonology, and citing the ability of TG to handle interlevel generalizations as a positive point:

> Within a TG framework [interlevel] generalizations can be expressed by means of redundancy rules in the dictionary, but [stratificational grammar] does not allow for their expression...Examples of this kind seem to me to present quite compelling evidence against the stratificational hypothesis: the theory is based on an assumption of a much greater independence of semantic, grammatical (or syntactic) and phonological phenomena than can be empirically justified.

Examples Huddleston cites include the selection of *more* and *-er* as the comparative marker in English according to the number of syllables in the compared adjective and the phonological reduction of auxiliary verbs in English when they are not followed by a movement or deletion site. We do not regard these cases as constituting empirical justification for relaxing autonomy assumptions; see our discussion in Pullum and Zwicky (1984). We see it as essential to permit such relaxations only to the minimum degree possible. Our strategy, therefore, will be to search for potential counterexamples to claims inherent in the IP, but also to examine such potential counterexamples with care and in detail. What we hope to be able to show is that in all the hundreds of cases of putative counterevidence that can be found, the best analysis of the facts is actually compatible with the IP. To the extent that this cannot be shown in particular areas, it will be our goal to amend the model as conservatively as possible, so as to extend expressive power only as far as the facts force us to, rather than accepting the counsel of some of the quotes given above and allowing interlevel relationships of any sort whatever to be stated by grammatical rules.

2.3. **The PPFS and PSCP.** The specific proposal within the IP that we are defending is that the theory of grammar prescribes that syntax and phonology constitute autonomous components. This is a claim about the grammars of all languages.

But how can a claim of autonomy be defended or attacked? According to the discussion in Zwicky (1984), which we will not reproduce here in detail, if two components are autonomous, then we expect no forward interactions between them, no backward interactions between them, and no duplication of principles between them. And we expect them to be nonuniform.

For the syntactic and phonological components, the hypothesis that there are no forward interactions is the Principle of Phonology-Free Syntax (PPFS) of Zwicky (1969):

(2) PPFS: No syntactic rule can be subject to language-particular phonological conditions or constraints.

Although a great many potential counterexamples to the PPFS have been put forward, it is our thesis that the PPFS can be maintained in its strongest form, which has guided most research on grammatical theory (in a variety of theoretical frameworks) during this century and is in fact *required* by other assumptions within certain of these frameworks (as we argued in Pullum and Zwicky 1984).

For the syntactic and phonological components, the hypothesis that there is no backward interaction is the Principle of Superficial Constraints in Phonology (PSCP) of Zwicky (1970):

(3) PSCP: The only syntactic conditions or constraints on phonological rules are those referring to surface structure.

Like the PFFS, the PSCP has been subject to many challenges; and like the PFFS, the PSCP has guided grammatical research in a variety of theoretical frameworks, in some of which it is a necessary consequence of other assumptions (again see Pullum and Zwicky 1984). Here too we maintain that the autonomy of syntax and phonology can be defended against apparent counterexamples; Kaisse (1985) examines a number of these.

Now consider the degree to which syntax and phonology exhibit nonuniformity. Several types of principles that are not obviously part of syntax--notably, those concerned with the placement of clitics and with the internal organization of morphemes within words--seem "syntactic" in character; in particular, they often assign hierarchical structures analogous to constituent structures in syntax (hence the title, *The*

Syntax of Words, of Selkirk's 1982 book on morphology). On the other hand, these very same types of principles also seem to have a phonological cast to them: word formation rules can be constrained to apply only to morphemes of certain phonological shapes, and (in the case of infixation and reduplication at least) they can perform phonological operations; cliticization rules are often claimed to be subject to at least one sort of phonological constraint (lack of stress), and there are phenomena that at first glance look like "endoclitics" (Zwicky 1977), parallel to infixes. It is clear, then, that word formation rules have some properties of syntax and some of phonology, and it is at least arguable that cliticization rules do too. One might be tempted to conclude, therefore, that syntax and phonology are not totally nonuniform.

Word formation and cliticization also seem to be interactionally intermediate between syntax and phonology. Although many problematic cases have been put forward, there is at least some support for all of the following generalizations, which locate both word formation and cliticization after syntax and before phonology:

(4) Cliticization after syntax: No syntactic rule must crucially apply after some cliticization rule.

(5) Word formation after syntax: No syntactic rule must crucially apply after some word formation rule.

(6) Phonology after cliticization: No cliticization rule must crucially apply after some phonological rule.

(7) Phonology after word formation: No word formation rule must crucially apply after some phonological rule.

Like the PPFS and PSCP, these generalizations are by no means universally accepted (though we would propose that when (4)-(7) are properly formulated, they are correct). Proposal (4) is implicitly rejected in many analyses of clitic phenomena. Proposal (5), the Generalized Lexical Hypothesis of Lapointe (1980)--"No syntactic rule can refer to an element of morphological structure"--was conspicuously rejected in early transformational grammar. Proposal (6) goes against standard assumptions about phonology and cliticization, which often have cliticization contingent on lack of stress. Proposal (7), which prohibits word formation rules that are conditioned or constrained by derived phonological representations, is the orthodox assumption of generative grammar, though it is relaxed in level-ordered phonology (Kiparsky 1982).

2.4. **Metaconsiderations**. We now collect our metatheoretical reasons for favoring the IP, and for defending the PSCP and PPFS in particular: because these assumptions are valuable as part of a research strategy (section 2.4.1), because they fit with proposals about the nature of the syntactic component (2.4.2), because they can contribute to limiting the expressive power of grammatical theory (2.4.3), and because they are compatible with hypotheses about modularity in domains other than grammar (2.4.4).

2.4.1 **The IP as a research strategy.** A research strategy built on the supposition that a grammar consists of a number of components interfacing with one another in limited ways gives rise to a series of expectations about the way languages work, and so to a series of predictions about the correct analysis of phenomena in particular languages, while a research strategy built on the supposition that there are few components, or that components can freely interface with one another, or both, generates few such expectations and predictions. The IP then permits us to entertain, and to test, a variety of hypotheses about the components of grammar, most of which would simply be invisible given a less differentiated framework. Even the search for negative results about component divisions, as pursued by Anderson (e.g., 1975) among others, demands that these divisions first be entertained as serious possibilities.

The IP can then serve as a powerful generator of hypotheses at several levels in linguistic analysis. It is virtually certain that some of these hypotheses will turn out to be incorrect, but we believe that it is at least as valuable to have a clear sense of why certain plausible hypotheses *cannot* be maintained as it is to have hit upon a collection of proposals that seem at the moment to be supported by the known evidence.

2.4.2 **The PPFS, the PSCP, and theories of syntax**. It is difficult to conceive of a theory of syntax for natural languages which would not allow for an analog of the Principle of Phonology-Free Syntax to be stated in its terms. Hence the positions we are taking should have a very high degree of generality and applicability; if they can be convincingly defended, then they will have consequences for any imaginable theory of syntax.

The range of different syntactic theories that have been seriously argued for in recent linguistic work is remarkably wide; if it is true that science is at its healthiest when numerous contending theoretical positions are being pursued simultaneously, then the field of syntax is visibly healthy. The upshot is that any work that claims to have truly general relevance must take account of the possibly distinct claims of theories as different as the pure phrase structure syntax advocated by Gazdar (1982), the more powerful two-level lexical-functional grammar (LFG) of Bresnan (1982), and the complexly modular recent versions of TG that go under the name of government-binding theory (GB; see e.g. Chomsky 1981), as well as many other varieties of syntactic theory with smaller numbers of adherents.

It is worth keeping in mind that there is a lot these theories share. For example, in all of them some notion of "surface structure" is present and is centrally important. For phrase structure theories it is the only syntactic structure there is. For LFG it is "c-structure," one of the two significant levels of representation for sentences. In GB, it is either the output level of the transformational component of the syntax or a level derived from this by certain operations such as deletion rules (the literature has not been particularly explicit about the details). Even in such a strikingly novel syntactic theory as Arc Pair Grammar (see Johnson and Postal (1980) for a detailed presentation) it has a direct analog, the concept of S-graph. Moreover, many standard labels for nodes, names of uncontroversially accepted lexical and phrasal categories like NP (Noun Phrase), VP (Verb Phrase), S (Sentence), and so on, are in common use in virtually all theories, so at the very least the diversity of notions and notations is not total.

Within certain syntactic theories, the PSCP and PPFS have a special status, in that they are consequences of other theoretical assumptions and not additional conditions on grammars. Consider "monostratal" theories, those positing no syntactic level other than what standard TG would call surface structure. Phrase structure approaches like the generalized phrase structure grammar (GPSG) of Gazdar, Klein, Pullum and Sag (1985) are conceptually the purest of these proposals, in that they assign the whole burden of syntax to a mechanism already admitted in standard TG, the phrase structure rules. Unlike standard TG, a theory like GPSG entails both the PSCP and the PPFS in their strongest forms. The PSCP follows since the surface syntax is the only syntax there is. The PPFS follows because the categorial component of the base operates in terms of the vocabulary of phrase structure (i.e. terminal and nonterminal symbols) and offers no possible role for phonological primitives.

It follows that an argument for abandoning either the PSCP or the PPFS is also an argument against GPSG and similar monostratal theories. Proponents of GPSG consequently have a compelling motive, in addition to general metatheoretical considerations favoring the IP, for supporting the PSCP and PPFS. And to the extent that the PSCP and PPFS hold, they can be seen as arguments for a theoretical framework (like GPSG, and unlike standard TG) in which these principles are necessarily valid. There is then an intimate relationship between the interfacing principles and the choice of a monostratal vs. a transformational syntactic theory.

2.4.3 **Issues of expressive power**. A theory with a number of components, interfacing with one another in limited ways, is potentially more falsifiable than one with few components, free interfacing, or both. This is because the former is potentially consistent with a narrower range of languages than the latter. To the extent that the IP restricts the set of possible languages, it is to be preferred to less modular frameworks for grammatical theory.

We must qualify these claims with "potentially" because whether a genuine restriction in the set of possible languages accrues from the IP depends on what components there are and what they are like internally. There are two caveats to be made here: the general observation (stressed by Wasow 1978) that restricting the set of possible grammars does not necessarily reduce the expressive power of a theory of grammar, that is, the set of languages that can be (weakly or strongly) generated under that theory; and a warning specific to the syntax-phonology interface, namely that the empirical consequences of proposals like the PSCP and the PPFS depend very much on the character of the syntactic and phonological components.

Does the PPFS actually restrict the expressive power of grammatical theory? There are certainly some syntactic theories in which imposing the PPFS has no empirical effect at all. Peters and Ritchie (1973) formalize essentially the theory of Chomsky (1965) and show that there are no recursively enumerable sets of strings whatever that do not have transformational grammars as defined by this formalism. (The technique is to use transformations to mimic the computations of a Turing machine; see Bach and Marsh (1978) for a simpler proof of the same result using a rather different technique.) What this means in its starkest form is that every language, attested or imaginary, is a language with a transformational grammar of the sort described in Chomsky (1965) or Lasnik and Kupin (1977); abandoning some, or even all, autonomy assumptions could not possibly lead to a wider class of languages being describable.[4]

The imposition of the PPFS will generally make no difference to this situation, for the proofs of "transformational omnipotence"[5] generally trade on the option of having as many arbitrary new terminals or nonterminals as necessary and on the power of deletion transformations. If we take any grammar containing a rule that clearly violates the PPFS, we can construct another that generates the same language (weakly and strongly) but does not violate the PPFS.

In fact, a stronger result is easy to prove: if the phonology defines a recursive mapping, and the syntactic part of the theory can provide a grammar for any recursive set, then for every grammar that violates the PPFS by virtue of making a reference in the syntax to some recursive phonetic property of constituents, there is an equivalent grammar that does not violate it. The proof is straightforward, and we merely sketch it.

Let C be the set of constituents generated by the syntactic component of some grammar G, and let P be the set of phonological representations of constituents in C. Without loss of generality, we will assume the mapping M from C to P is a function. Suppose there is some recursive subset P' of P whose members meet a particular phonetically defined condition. Then there is some subset of C, call it C', that is mapped onto P' by a submapping of M. Since P' is recursive, we can decide membership in it. Since the phonological component defines a recursive mapping, we can decide for an arbitrary member of C whether its image is in P'. This is equivalent to deciding whether it is in C', hence C' is recursive. But in that case, since the theory provides a grammar for every recursive set, we can give a syntax for C' directly. Hence for any syntactic rule conditioned by a reference to the property of being in P', we can give an equivalent purely syntactic account that makes no mention of P'.

An example may help for readers who prefer not to view things so abstractly. Consider the case of a grammar containing a movement transformation that obligatorily moves to the beginning of the sentence the highest constituent that begins *phonetically* with a bilabial consonant. Imagine that the language has an optional rule of vocalic prothesis, so that knowing a constituent has a bilabial-initial word as its first word at the underlying phonological level is not sufficient to determine whether it should be moved. This would be a paradigm case of a PPFS violation. Yet by what we have just established, a syntax can be given for this language within any theory that provides grammars for all the recursive sets, in terms that do not mention the phonetic property of bilabiality, provided only that (i) it is decidable for arbitrary syntactically represented constituents what phonetic representations they are assigned by the phonological rules, and (ii) it is decidable for arbitrary phonetically represented constituents whether they begin with a bilabial consonant. One can hardly imagine a theory of phonology that did not guarantee (i) and (ii).

It might be charged, then, that the PPFS is without consequences and so is of no theoretical interest, at least within sufficiently powerful theories (for example, any transformational or other theory capable of providing grammars for arbitrary recursive sets). One response to this charge invokes the "strong mentalist" position on the nature of grammars: that the grammars defined by linguistic theory are actually identical to a component of the mind of a speaker of the language, so that any claim restricting the number of permissible grammars has empirical consequences in cognitive psychology and ultimately in brain neurophysiology.

Under the strong mentalist interpretation of the subject matter of linguistics, clearly, it is not difficult in principle to specify the consequences of assuming the PPFS (though it may be in practice very difficult to identify them experimentally). There may be much to be said for the idea that grammatical constraints have psycholinguistic implications. In particular, we suspect that there may be very significant consequences of the PPFS in the domain of parsing: to know that the phonetic complexities of speech processing will not be implicated in the syntax at arbitrary points in unpredictable ways must surely take some potential complexity out of grammatical parsing. But we regard this connection as conjectural, and regard the strong mentalist interpretation of grammatical theory as somewhat implausible. Linguistic theory is surely of some psychological relevance, but to equate the specification of grammars for natural languages with the investigation of the brains of speakers strikes us as falling into the trap of confusing grammars and speakers, which we have warned against above (cf. Soames 1984 for discussion).

Another response to the omnipotence argument to which we do *not* wish to subscribe appeals to a division of the theory of grammar into

> two parts: a universal grammar UG that determines the class of possible grammars and the way they operate, and a system of evaluation that ranks potential grammars in terms of "optimality" or "simplicity"...To attain explanatory adequacy the theory T must be sufficiently restricted so that relatively few grammars are available, given a reasonable amount of experience E, to be submitted to evaluation; otherwise, the burden on the evaluation procedures is intolerable. A reasonable project for linguistic theory, then, is to attempt to constrain UG so that potential grammars are "scattered" in terms of a measure of optimality; only a few grammars need be considered, given experience. (Chomsky and Lasnik 1977, 427)

In this proposal the evaluation metric would bear a great part of the burden of explaining why we find languages with certain sorts of structure and do not find languages with other sorts; both classes of languages might be consistent with universal grammar, but those in the second class would have grammars that score badly on the measure of optimality. Exactly this proposal is put forth by Sampson 1973, who supposes that an evaluation metric will sort out the languages in the second class as (relatively) "unnatural" because of the complexity of their grammars, as measured by evaluation procedures.

We wish to reject this line of reasoning on at least two grounds, both stemming from the sort of "constructivist" universal grammar that Chomsky and Sampson have in mind in these discussions. In the now-standard view, universal grammar supplies a collection of pieces of formalism from which individual grammars can be constructed, along with a set of restrictions on their combination. The (also universal) evaluation metric assigns values to the individual pieces and (by regular formulas) to combinations of these pieces. The ultimate function of the evaluation procedures is to assign a metric of complexity to the grammar as a whole.

The first difficulty arises directly from the latter fact. The metric measures the (un)naturalness of the whole grammar; subparts of the grammar are assigned measures, but these measures are of no systematic importance. As a result, there is no way to speak of an individual *rule* as being either natural or unnatural. Within the constructivist framework there is no way to say that a syntactic rule containing 1000 symbols is highly unnatural (indeed, one might want to say it is impossible). If a rule containing 1000 symbols were one of only one or two rules comprising the entire grammar, the grammar as a whole might be evaluated as no more complex than grammars of quite familiar languages with their dozens or hundreds of rules that can be stated fairly briefly. Similarly, the framework does not make it possible to say that a rule mentioning the arbitrary list { Article, [NP, +Pro, +Acc], [Adv, Manner], *remonstrate*, *S'*, } is unnatural (or impossible). The difference between a set of items that must be listed and one that can be picked out by reference to some motivated syntactic feature is, from the point of view of an evaluation metric, a very small difference--less than the complexity contributed by most single rules--so that a *grammar* with a rule that includes reference to an unmotivated list will not necessarily be rated as particularly complex or unnatural.

A second difficulty arises from the fact that in the constructivist framework there is no intrinsic connection between the parts of a rule; anything constructible from the elementary formal units according to the principles of combination is a possible rule of grammar. To see the sorts of predictions about possible rules and possible grammars that are thereby made, take any carefully stated version of a reasonably uncontroversial syntactic or phonological rule and construct from this original a collection of other possible rules by replacing bits of the original by alternatives, and by altering the order of the original parts, and by eliminating some of the original parts. The results will in most cases be nonsense from the point of view of the grammars of genuine human languages, even though they are, strictly speaking, well-formed rules. Moreover, they are rules of comparable complexity/naturalness to the original, given an evaluation metric along the lines suggested in the literature on generative grammar.

We take the view, therefore, that it will not do to adhere to a constructivist view of universal grammar and so to rely on the evaluation metric to sort out the available grammars and possible languages from the unavailable grammars and impossible languages.

However, it is not necessary for us to adopt the strong mentalist interpretation of linguistic theory or to embrace the evaluation metric in order to explicate a sense in which the PPFS can have consequences. What is required is a genuine limitation on universal grammar, achieved either by restricting its formalism (as advocated, for instance, by Peters (1973) and by GPSG in general) or by restricting its substance (as advocated, for instance, by Bach (1965) and by relational grammar in general). In particular, it would be desirable to find a principled way of imposing restrictions on the nonterminal vocabulary of the grammar (that is, on the set of syntactic categories) which were both formal and substantive: a finite bound on the nonterminal vocabulary of universal grammar, and a requirement that every syntactic category be subject to substantive constraints as to the role it can play in syntactic rules. What this would bar is the ad hoc construction of syntactic categories to surmount descriptive obstacles, or the ad hoc formulation of syntactic rules, using motivated categories, for the same purpose. If such uses of syntactic categories are excluded, then assuming the PPFS makes certain languages undescribable.

Consider an analogy between grammars and Turing machines. The power of Turing machines can be seen as arising from two sources, the lack of a limit on the number of symbols a machine can work with and the lack of a limit on the number of machine states. It is known that limiting Turing machines to only two auxiliary states (plus one 'accepting state', but with no limit on the number of auxiliary symbols) does not reduce their generative capacity (Shannon 1956), nor does limiting them to only two auxiliary symbols (but with no limit on the number of states) (Hopcroft and Ullman 1969, 100, citing Wang 1957); a reduction in generative capacity can be achieved only by limiting both the stock of states and the stock of symbols, so that, speaking intuitively, a Turing machine no longer has the unlimited capacity to do scratch work. The excessive power of standard TG has analogous sources; transformational grammars can do their scratch work either by using some special nonterminal symbols or by applying special rules to a fixed nonterminal vocabulary (then deleting blocks of symbols used for scratch work), and a reduction in generative capacity can be achieved only by limiting both the stock of nonterminals and the operations that can be performed on whatever nonterminals there are.

We are suggesting that formal limitations should be imposed, and that in addition the limits should be linguistically motivated. If this is done, then the PPFS will do just the work we intended it to do. No grammar could then have the effect of making reference to a constituent whose first word begins with a bilabial: the PPFS would bar direct reference to such constituents, and the constraints on nonterminal symbols would bar indirect reference, since the class of constituents whose first words begin with bilabials is surely not a syntactic category that universal grammar would make available on other grounds.

2.4.4 **Other kinds of modularity.** The issue of modularity in the theory of grammar--that is, the issue of whether the logic of the relationship between sound and meaning in language supports the division of the rules describing this relationship into a number of distinct components--must be kept distinct from issues of modularity in two other domains, psycholinguistics and cognition in general. Nevertheless, there are connections between grammatical modularity and these other types of modularity: psycholinguistic modularity could add substantial support to the IP, and the IP in turn presupposes general cognitive modularity.

Consider first the question of modularity in psycholinguistics, that is, in language processing (production, comprehension, and memory). It is widely assumed that language processing is modular, and Garrett and his colleagues have vigorously defended the assumption of a close connection between psycholinguistic modules and the components in a grammar; Garrett and Kean (1980), in fact, propose that the levels of representation in processing and the interface representations in grammar are identical. (Note that they do *not* claim any special relationship between the internal organization of a psycholinguistic module and the corresponding grammatical component.) Verification of this proposal would give considerable support to specific models within the general IP, although the IP in no way depends upon the existence of psycholinguistic modularity.

Next consider the question of general cognitive modularity, of the degree to which there is an autonomous grammar module among other such modules (as maintained by Chomsky in many places and treated at length by Fodor (1983)).[6] A commitment to general cognitive modularity carries with it no investment in the IP. But those who support modularity in grammar will also champion general cognitive modularity, for obvious reasons: If there is no distinguishable grammar module, how can we discuss whether it has autonomous components? With other advocates of the IP, then, we assume that grammar is distinct from various extragrammatical domains. Some pieces of discourse in a language will be bizarre in meaning, pointless in context, lacking in grace, hard to comprehend, rude in tone, hard to pronounce, metrically regular, devious in intent, previously encountered, novel in form, frequently uttered, or open to multiple interpretations, to mention just a few factors assignable to domains distinct from (though related to) the domain of grammar. But the operation of rules in any component of grammar will not depend on whether sentences that the rules describe have such properties. There are many aspects of the study of language that are distinct from the study of grammar; they include studies of the purposive use of language, speech perception, speech production, the social "meanings" of linguistic forms, discourse organization, stylistics, and poetics.

3. **Putative counterexamples to the PPFS.** We now sketch our strategy for defending the Principle of Phonology-Free Syntax (PPFS).

The PPFS makes a specific technical claim about grammars, in the sense of *grammar* we introduced in section 1 above. The claim is that none of the rules in the syntactic component of a grammar refer to constructs drawn from the phonological, as opposed to the morphosyntactic, subset of the constructs made available by the overall theory of grammar. But the PPFS says nothing about rules in other components of a grammar. We must therefore be specific about what other components there are and how they interface with syntax and phonology; indeed, we must be specific about the components falling under the headings "syntax" and "phonology." These matters are the subject of section 3.1. Then (in section 3.2) we provide a typology of apparent violations of the PPFS.

3.1. **The components of grammar.** The grammatical components of interest to us include both syntactic components, describing the combination and ordering of words in phrases and sentences; and phonological components, describing the realization of morphosyntactic units in terms of phonological units.

3.1.1. **Syntactic components.** There is much that we can leave open concerning the structure of the purely syntactic components of a grammar. But what we can be explicit about includes the fact that the syntactic components provide (1) a set of representations we shall call *preterminal structures* which contain at least categorial, constituency, and linear precedence information, but not the content of particular lexical entries; and, derived directly from them, (2) a set of representations called *terminal structures* which contain all the above information plus an indication of which particular lexical items occur in the represented sentence.

Thus, to take a very simple case, if the syntax is assumed to involve just a phrase structure grammar as in Gazdar (1982), the preterminal structures are trees with immediately preterminal nodes--and thus most of the feature detail associated with the items in the sentence, though not the information distinguishing between words belonging to the same syntactic category--and the terminal structures are similar trees, but have indices or names of particular syntactic words added under the preterminal nodes. Thus *Birds eat* and *Birds drink* might have identical preterminal structures but distinct terminal structures. This amounts to a claim that the difference between *eat* and *drink* is not a syntactic difference.

By distinguishing between preterminal and terminal structures, we avoid reproducing much of the content of the lexicon of a language in its syntax. Preterminal structures are, speaking strictly, the output of the syntactic component; the syntax then is not responsible for providing features to distinguish between every pair of words the language happens to have in its lexicon. However, we also need a level of "syntactic" representation at which (for instance) *Birds eat* and *Birds drink* are not the same. Terminal structures differ from preterminal structures *only* in this respect; they can be viewed as preterminal structures with pointers to words entered in the lexicon, but of course without any of the content of those lexical entries.

One further distinction needs to be mentioned here because it leads to a series of apportionment problems involving syntax and the lexicon. This is the distinction, in what we shall call "classical TG" (cf. Jacobson and Pullum (1982, Editorial Introduction)), between *cyclic* and *postcyclic* syntactic transformations. Classical TG assumes a component division here, both because of limited interactions (no cyclic rule applies after a postcyclic rule) and also because of nonuniformity (cyclic rules are bounded, potentially lexically governed rules making reference to grammatical relations but not to linear order and applying in cyclic fashion, while postcyclic rules are potentially unbounded, lexically ungoverned rules making reference to linear order but not to grammatical relations and applying in a single pass; cf. Pullum (1979, chs. 2 and 4)). Consequently, in standard TG there is an interface representation--sometimes called *shallow structure*--between the two components, which is presumed to be a grammatically significant level of representation.

Virtually all current versions of generative grammar (whether transformational or not) make some distinction reminiscent of the cyclic/postcyclic distinction, but they differ in just where the line is drawn, how the difference is represented, and what significance is attributed to the interface representation (if any is defined). This is not the place to conduct a detailed review of the matter, but we have to consider one possibility, namely that (some or all of) the traditional cyclic rules are to be replaced by "lexical" analyses.

Consider a rule like the Dative Movement of classical TG, which has been regarded as cyclic. There are two quite different proposals for a lexical alternative to such a rule. The first denies that there is any generalization to be made about the relationship of two classes of structures (for instance, transitive VPs containing a *to*-dative and ditransitive VPs). Instead, particular words are subcategorized according to which frames they occur in, that is, according to the points in preterminal structures at which their indices can be inserted. A Dative Movement verb, on this analysis, is one that has two independent lexical features, one indicating that the verb occurs in a VP frame with a NP and a PP with *to*, the other indicating that the verb occurs in a VP frame with two NPs. A second lexical treatment of a cyclic rule posits the same subcategorization features in the lexicon as the first treatment, but declares that these features are not independent of one another--that there are principles predicting some features on the basis of others--and that these principles belong in the lexicon rather than in the syntactic component. On this analysis, a Dative Movement verb has both of the subcategorization features, the occurrence of one of them (let us say the ditransitivity feature) being predictable from the occurrence of the other.

The general class of principles relating features within lexical entries we refer to as *lexical implication principles*, or LIPs; they are known as *lexical redundancy rules* in the TG literature. In general, the existence of such principles does not depend on how the traditional cyclic rules are to be treated. That is, there is a component of LIPs (which we can think of for the moment as being "in the lexicon"), and it might be that some, or all, of the traditional cyclic rules can be eliminated in favor of principles in this component.

In standard TG a particular class of phenomena involving lexical government might be best described by indepemdent subcategorization features in lexical entries, by an LIP distributing subcategorization features in lexical entries, or by a cyclic transformational rule triggered by a rule feature in lexical entries. A similar apportionment problem arises in GPSG, where the role of a cyclic transformational rule can sometimes be filled by a metarule (a principle predicting one class of phrase structure rules on the basis of another) and where both independent subcategorization features and LIPs are available. That is, in standard TG and in GPSG, both syntactic and (two kinds of) lexical analyses can be framed for certain phenomena that might on first acquaintance be viewed as "syntactic". Finally, in more stringently lexicalist frameworks, such as LFG, only the two types of lexical analyses are permissible in such cases, and no syntactic component can be appealed to for an account of the facts.

The PPFS bars any syntactic rule in which items subject to the rule are picked out by phonological predicates. In TG terms, it prohibits phonological determination both in phrase structure rules and in transformational rules; neither the class of verbs subcategorized for the frame [____NP $_{PP}$[*to* NP]] nor the class of verbs subject to Dative Movement can be picked out phonologically. In GPSG terms, phonological determination is impossible both in rules and in metarules. But the PPFS is silent on the question of whether principles in components of a grammar other than the syntactic component can refer to phonological predicates, and unfortunately (as we point out in Pullum and Zwicky 1984) the existence of a component of LIPs opens the door to analyses that use phonological reference in the LIP component to achieve the effect of phonological determination in a lexically governed syntactic rule. As a result, the increased reliance on a rich set of LIPs (versus transformations or metarules) in lexicalist approaches to syntax is not unproblematic. We believe, however, that the spirit as well as the letter of the PPFS can be maintained here.

3.1.2. **Phonological components.** We assume that phonology itself is articulated, comprising principles in a number of distinct components. However, as far as the PPFS is concerned, phonology could well be a single homogeneous component. The PPFS rules out phonological predicates, of any sort, in syntactic rules.

Nevertheless, we cannot discuss examples in a theoretical vacuum. It is also conceivable (though, in our view, unlikely) that the PPFS could not be maintained in its full generality, in which case we would not want to admit phonological predicates of all sorts in syntactic rules, but would search for restrictions on the types of phonological representations that could play a role in syntax; an articulated phonology would serve as a natural source of potential restrictions.

In any event, we follow Dressler (1985) in distinguishing *allomorphy rules*, involving phonological operations as concomitants of morphological rules (whether derivational or inflectional), from *morphonological rules*, in which general phonological operations apply in morphosyntactic domains, and these in turn from *(purely) phonological rules*, in which general phonological operations apply in purely phonological, or "prosodic", domains. In addition, following Zwicky (1986), we distinguish a set of *shape conditions* that override allomorphy rules and precede morphonological rules; among the shape conditions are those governing the well-formedness of clitic groups.

Though all the details of this proposal are important, in the present context what is most significant is that these component distinctions impose a sharp division of "phrase"-phonological rules into two types, a prosodically sensitive group and a morphosyntactically sensitive group. This is essentially the division advocated by Rotenberg

(1978) and Hasegawa (1979) and defended in some detail by Kaisse (1985), who uses the terminology "rules of fast speech" (for automatic, prosodically sensitive rules of phrase phonology) versus "rules of connected speech" (for nonautomatic, morphosyntactically sensitive rules of phrase phonology).

3.2. **Analyzing apparent violations of the PPFS.** A genuine violation of the PPFS would be a generalization about a language which is correctly expressed as a syntactic rule referring to phonological constructs. An apparent violation could then fail to be genuine on any of the following grounds: the generalization might be spurious (section 3.2.1); a real generalization might involve not a rule, but rather a preference or tendency (3.2.2); a real generalization might involve a rule not of grammar, but rather of some extragrammatical domain (3.2.3); a rule of grammar might be located not in the syntactic component, but rather in one of the other components discussed in section 3.1 (3.2.4); or a rule of grammar might be subject to a phonological condition or constraint that is universal, and therefore is not to be stated as part of the rule (3.2.5).

3.2.1. **Spurious generalizations.** Occasionally in the literature it has been claimed that some syntactic rule is subject to a constraint involving the phonological properties of some morpheme, word, or constituent--but on closer inspection it turns out that there is no real phonological conditioning whatsoever, that when the constraint is correctly described, it can be seen to arise from some essentially nonphonological basis. The generalization involving phonology is spurious. Sometimes a putative generalization vanishes completely under scrutiny.

Particularly susceptible to reanalysis in nonphonological terms, or to outright rejection, are "functional" accounts of syntactic and morphological phenomena. It is sometimes maintained, for instance, that some forms take the shape they do *in order to* achieve a one-to-one association between morphosyntactic categories and their phonological realizations--that is, in order to avoid ambiguity and redundancy--and that this teleological statement involving phonology constitutes a sufficient description of the morphosyntactic facts. Both linguists (Durrell 1979) and language teachers (Eltzner and Radenhausen 1930, 22-3) have espoused versions of this proposal for the three adjective "declensions" in German. We sketch the facts briefly here; for a full treatment, see Zwicky (to appear, sec. 3.1).

There are three paradigms for adjective inflection in German, traditionally called "strong," "weak," and "mixed." The choice among them is governed by the determiner preceding the adjective. Indeclinable determiners (including the zero determiner) govern the strong declension, in which most of the 16 case/gender/number combinations are realized by distinct endings. Determiners in a second group (with nearly the same paradigm as the strong declension of adjectives) govern the weak declension, in which there is massive levelling in favor of only two endings, *-e* and *-en*. Determiners in a third group (with zero endings for some combinations) govern the mixed declension, which has some endings from the strong declension and some from the weak. The paradigm for the mixed declension can be roughly viewed as an trade-off in information about case, gender, and number: if the determiner has an ending, the adjective doesn't need to supply any information, and so has a weak-declension ending; but if the determiner lacks an ending, the adjective must supply information, and so has a strong-declension ending. The indefinite article *ein* governs the mixed declension, so that when it has an ending, as in the dative singular masculine *einem*, a following adjective has a nondescript ending (-*en*); but when it lacks an ending, as in the nominative singular masculine *ein*, a following adjective has an informative ending (-*er*).

The question is what the grammar of German says about these facts. Zwicky (to appear) formulates several versions of a principle requiring unambiguous and unredundant phonological expression of case, gender, and number within German NPs and supplies counterexamples to all of them. Zwicky further observes that even if one of these versions had been free of counterexamples, it would still have been far too weak to predict the actual paradigms that German has and so would have no place as a rule in any component of grammar. If we lower our sights and try to describe only the mixed declension, with the other two declensions as givens, it is possible to formulate a rule of allomorphy much as in the preceding paragraph, which will cover this narrow range of facts but doesn't mention ambiguity or redundancy: The ending of an adjective in the mixed declension is chosen from the strong paradigm if the preceding determiner has a zero ending, otherwise from the weak paradigm. It then turns out that the reference to the makeup of adjacent words and to (phonological) zero in this allomorphy rule are both dispensible. The following allomorphy rule covers the facts equally well: The ending of an adjective in the mixed declension is chosen from the strong paradigm in the nonfeminine nominative singular, otherwise from the weak paradigm.

The fate of putative syntactic generalizations employing functional notions like ambiguity and redundancy is, in our experience, uniformly grim. (We considered another case in Zwicky and Pullum 1983, on Somali.) Those who advance such proposals are attempting to make rules of grammar perform a task they are not equipped for: not only to describe some aspect of the sound-meaning pairing in a language, but also to encode directly their extragrammatical reasons for being, to (so to speak) wear these reasons on their sleeves. This is to insist that form should not merely follow function, it should *be* function. It makes sense that grammars should contain rules that, individually or in concert, help make sentences pronounceable, parsable, informative, reasonably brief, and the like, but there is no reason to think that we can tell what a rule is good for by looking at it wrenched from its grammar, and we believe it is always a mistake to formulate a rule explicitly in terms of its functions.

Cases of spurious generalization are often complex. In some, there is a correlation between a phonological property and the applicability of a rule, but this correlation is weak, constituting at best a tendency (see section 3.2.2). In some, the constraint not only is nonphonological but also applies to a rule that belongs in some component other than syntax (see section 3.2.4). On occasion, there are dialect differences, with one dialect failing to present a counterexample to the PPFS because a phonological generalization is spurious and a second dialect failing to present a counterexample to the PPFS for a different reason.

Two cases from English, one involving ditransitive verbs and the other combinations of verbs with particles, illustrate some of this complexity. These are treated in Zwicky and Pullum (1986).

3.2.2. **Preferences and tendencies.** As we said in section 1.1, there are (at least) two ways in which a real generalization about linguistic events can fail to constitute a rule of grammar and so cannot possibly be a candidate for a phonological constraint on a syntactic rule. The first of these is that the generalization describes a *preference* (if we look at matters from the point of view of speakers) or a *tendency* (if we take a more neutral viewpoint). For instance, given two alternative expressions differing in length, speakers might prefer to use the shorter in most circumstances, thus following a principle of least effort, both for themselves and for their addressees. Or given two alternative expressions, one alliterative and the other not, speakers might tend not to use the alliterative version, thereby avoiding material that is difficult to pronounce.

It is not necessary for a tendency to be explicable by reference to language production or comprehension, as these two (not entirely hypothetical) examples are. A statistical tendency favoring one class of forms over another in certain circumstances can be a remnant of linguistic history, subject to diachronic but not synchronic explanation; see our discussion of Dative Movement verbs in Zwicky and Pullum (1986). We argue there that if there were any tendency for these verbs to be either monosyllables or initially stressed disyllables, such a tendency would be sufficiently explained by reference to the historical sources of the verbs. From a synchronic point of view, any such tendency would be an accident. There would be no reason to think that it played a role in language production or comprehension, and certainly no reason to think that it should be expressed in a rule of grammar.

In section 1.1 we mentioned a third source of tendencies favoring one class of expressions over another: structured variability in language use. The first lesson of quantitative sociolinguistics is that linguistic variables are often correlated (in the statistical sense) with social, situational, and personality variables, as well as with one another. Particular groups of speakers can then be characterized sociolinguistically by their base settings on certain linguistic variables (expressed as estimated probabilities) plus their pattern of correlations among variables (expressed as a system of formulas each relating the probabilities for several variables); see Weiner and Labov (1983) for an illustration of the method applied to agentless passives in English. What interests us here is the occurrence of correlations between linguistic variables. We take particular note of the possibility that the applicability of a syntactic rule might be correlated with some phonological variable--that, say, topicalization might be favored for polysyllabic NPs over monosyllabic NPs.

There are actually two ways in which this correlation might be established. The first is that each of the linguistic variables might be dependent on some nonlinguistic variable and covary as a result. For instance, in some group increasing age might predict higher frequencies for both topicalization and polysyllabicity. There might then be a tendency for polysyllabic NPs to topicalize and/or a tendency for topicalization to affect polysyllabic NPs. But a sociolinguistic description of language use would have no reason to mention any such tendencies in the speech of this group, and neither of course would a grammar for their dialect.

The second possibility is that the correlation between variables might be irreducible and so require explicit representation in a sociolinguistic description of language use, as a statement relating polysyllabicity, topicalizability, and other factors. A tendency would then have found expression as a principle in an extragrammatical domain.

We do not know whether there are any real-life instantiations of this possibility. For one thing, the methods of quantitative sociolinguistics are not designed to distinguish causes and effects within a set of variables; a probability formula merely describes a mathematical relationship among many factors, both linguistic and nonlinguistic, and it cannot be taken seriously as a principle in a sociolinguistic description of language use. Such a principle should describe a linguistic practice, should describe what speakers know about how and when to use some element of linguistic form. It should say, for example, what speakers know about using the word *steed* or what they know about using topicalized sentences. But to our knowledge, no precise, unified, and comprehensive theory of such principles exists (in the way that precise, unified, and comprehensive theories of syntax exist). As a result, there is no sensible way to address the question of what some subset of these principles might be like. We do not rule out the possibility that one of these principles says that some syntactic construction is especially favored when it has certain phonological properties. Needless to say, we cannot rely on this possibility in reanalyzing putative violations of the PPFS.

We have uncovered at least three sources of statistical tendencies in linguistic behavior: speaker preferences based on extragrammatical considerations, including production, comprehension, and style; residues of linguistic history; and structured sociolinguistic variability. In all three cases, explanations for the tendencies are to be sought *outside grammar*, in accounts of language use or diachronic change.

We use this fact when we classify some phenomenon as a tendency or preference rather than a rule or a condition on a rule; we intend that every such classification should be backed by a reference to an extragrammatical consideration that can provide a sufficient explanation for the phenomenon at hand. We do not claim that every statistical tendency in linguistic behavior has a discoverable extragrammatical explanation. But we are not willing to dispose of putative counterexamples to the PPFS (and other interfacing assumptions) by facile references to "mere tendencies."

The problem arises when we have to distinguish a (statistical) tendency from a rule with exceptions that must be characterized by the grammar. Suppose we are confronted with the observation that certain instances of a construction do not occur (in speech or in texts), or that informants find them unacceptable. There are three possible interpretations: either the unacceptable data are to be treated as ungrammatical, and they are to be described as systematic exceptions to the rule describing the construction, via a condition on the rule; or the unacceptable data are to be treated as ungrammatical, but the exceptions are to be listed, and any similarities among them reflect mere tendencies; or the data are unacceptable because they are victims of some tendency favoring alternative expressions. The second interpretation is the one we use in our discussion of Dative Movement and verbs taking particles. The third interpretation is the one we propose to appeal to in, for instance, discussions of the unacceptability of adverbs like *friendlily* and sentences like *They gave a fight that now seemed to them utterly without hope of success up.* In both interpretations, the appeal to tendencies must be backed by a sketch of relevant extragrammatical considerations.

3.2.3. **Extragrammatical generalizations.** A real generalization about linguistic events can fail to constitute a rule of grammar because it describes a preference or tendency. It can also fail, as we noted in section 1.1, because it describes a linguistic practice (however rule-governed) in some domain other than grammar. As in the case of preferences and tendencies, if the generalization is not a rule of grammar, *a fortiori* it is not a possible candidate for a phonological constraint on a syntactic rule. The extragrammatical domain that has most often been confounded with grammar is the realm of verbal play and verbal art. There are principles in this domain which do in fact refer to phonological properties of morphological and syntactic units--the "rules" of language games (like Pig Latin) and poetic forms (like the sonnet). These phenomena have considerable import for a theory of phonology and perhaps for theories of other components of grammar as well. But they have nothing to do with the PPFS or the other interfacing assumptions, since they are not rules of grammar.

3.2.4. **Nonsyntactic rules.** Even if a generalization genuinely involves phonology, and even if is to be formulated as a rule of grammar, rather than as a tendency or as a regularity in some extragrammatical domain, it might still be beside the point in an examination of the PPFS because it is not a rule of *syntax*, but belongs instead in some other component of grammar. It might, for instance, be a "phonological" rule (of one sort or another) with a syntactic constraint on it, rather than the reverse, or it might be a rule of morphology or a shape condition. In such a case the existence of a phonological condition on the rule has no bearing on the PPFS.

3.2.5. **Universals.** A final possibility is that there is a phonological condition on some syntactic rule, but that the condition is supplied by universal grammar, not stipulated parochially. Individual grammars have no choice in the matter. We are willing to entertain such circumscribed phonological constraints on syntactic rules because (unlike parochial constraints of this sort) they involve no increase in the expressive power of grammars. As it happens, universal constraints like this are more than a hypothetical possibility; see the discussion in Pullum and Zwicky (in press) of a universal condition on coordinate structures which refers to phonological identity.

Notes

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[1] See Zwicky (1984) for an extended discussion of the ideas in this section.

[2] We do not in fact think it is correct to say that the theory of Chomsky (1965) entails this strict separation, though it was probably intended to; see section 2 of Pullum and Zwicky (1984).

[3] It seems likely that it was also an unnecessary weakening; see Katz (1980) for a critique of Chomsky's treatment of the syntax-semantics interface.

[4] It is therefore surprising to us that Chomsky and Lasnik (1977, 427) say

> Even this extremely rich theory [of Peters and Ritchie (1973)--GKP/AMZ] does not encompass such devices as structure-building rules, global rules, transderivational constraints, and others that have been proposed. Any enrichment of linguistic theory that extends the class of possible grammars requires strong empirical motivation. We feel that this is lacking in the case of devices that exceed the framework of Chomsky (1955), Peters and Ritchie (1973), and comparable work...

But the point is that there can in principle be no empirical motivation: no facts about the class of languages could speak either for or against a proposed extension of the class of grammars these theories define.

[5] The term is due to Sampson (1973).

[6] The terminology in the literature on grammatical modularity and cognitive modularity is confused, with the words *modularity* and *autonomy* used in different ways by different authors in their discussions of grammars and of cognitive models. We advocate using both terms in both contexts, intending thereby a distinction between the existence of modules and their distinctness.

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Two Spurious Counterexamples To the Principle of Phonology-Free Syntax*

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1. **Ditransitive verbs in English.** It has occasionally been suggested[1] that the contrast between verbs like give in (1) below and those like donate in (2) indicates that the English grammatical alternation known as "Dative Movement" is conditioned in some way by the phonological makeup of the governing verb--by the number of syllables in the verb, or its stress pattern, or both.

(1) a. I gave $50 to the Save-A-Kitty Fund.
b. I gave the Save-A-Kitty Fund $50.
(2) a. I donated $50 to the Save-A-Kitty Fund.
b. *I donated the Save-A-Kitty Fund $50.

There are three separate analytical problems here. First, what is the property that distinguishes the ditransitive verbs that occur in both the (b) and the (a) constructions from those that occur only in the (a) constructions? Second, does the fact that a verb has this property determine the verb's ability to occur in the (b) form, or does the existence of a (b) form determine that a verb has this property? Third, at what level of structure is this property relevant--the level at which Dative Movement applies, or surface structure? Cases like (1) and (2) would be relevant to the PPFS only if the possibility of the (b) forms was related to some phonological property of verbs (rather than, say to the historical stratum to which a verb belongs), and then only if that phonological property determined the possibility of a (b) form (rather than the reverse), and then only if the phonological property acted as a condition on the applicability of a syntactic rule governing the Dative Movement alternation (rather than as, say, a filter applying to a postsyntactic level containing information about both syntactic categories and syllable structure).

These matters are examined by Green (1974, 77-9). For to-datives (as opposed to the related for-dative in *I bought a raccoon coat for Zelda/I bought Zelda a raccoon coat*), she considers four phonological conditions having to do with the governing verb ((1) the verb is a monosyllable, (2) it is a disyllable with initial stress, (3) it is a disyllable with final stress, or (4) it is a trisyllable) and one nonphonological attribute (whether it belongs to the Anglo-Saxon stratum of the modern English vocabulary or not). She effectively dismisses the possibility that surface phonological form is at issue by observing that progressive forms obey the same constraints as their stems even though they have one more syllable than their stems:

(3) a. I am giving $50,000 to the Fitzgerald Fund.
b. I am giving the Fitzgerald Fund $50,000.
(4) a. I am donating $50,000 to the Fitzgerald Fund.
b. *I am donating the Fitzgerald Fund $50,000.

What remains is the possibility that a syntactic rule feature determined by the phonological properties of the lexical entry for the verb stem is at work.

But in fact Green gives examples that frustrate all the remaining hypotheses having to do with phonology, as well as those having to do with lexical strata, no matter which direction of determination is at issue. The data can be summarized in a table of verbs as categorized by their properties, with verbs that permit Dative Movement--that is, verbs that occur in both the (a) and (b) constructions above--marked by a "+", and with verbs that prohibit Dative Movement--that is, verbs that occur in the (a) but not in the (b) construction above--marked by a "-"; "*****" indicates that there are probably no examples of the appropriate sort (see Table 1.

Table 1. Phonological and etymological properties of ditransitive verbs

	ANGLO-SAXON	NON-ANGLO-SAXON
MONOSYLLABLE	+give +tell +show +mail +toss	+cite +quote +cede
	-lift -raise -lisp -yell	-prove -voice
DISYLLABLE, INITIAL STRESS	+carry +cable	+promise +offer
	-broadcast -mutter	-donate -transfer
DISYLLABLE, FINAL STRESS	*****	+advance +permit
	*****	-admit -confess
TRISYLLABLE	*****	+deliver +guarantee +telephone +radio
	*****	-exhibit -illustrate -recommend

The judgments in this table are Green's, and not everyone agrees on each example; but there are some cases of each type for every speaker of English we have investigated. Thus, in contrast to *give* (+) versus *donate* (-) above, there are the phonologically, and stratally, similar *yell* (-) versus *promise* (+):

(5) a. She yelled the password to Quentin.
b. *She yelled Quentin the password.
(6) a. She promised a daffodil to Ramon.
b. She promised Ramon a daffodil.

Phonology is not directly relevant even in finally stressed disyllables and in trisyllables; compare *advance* (+) versus *confess* (-) and *guarantee* (+) versus *recommend* (-):

(7) a. Margaret advanced twelve shillings to Owen.
b. Margaret advanced Owen twelve shillings.
(8) a. Peter confessed his sins to Shirley.
b. *Peter confessed Shirley his sins.
(9) a. The company guarantees a feast to its customers.
b. The company guarantees its customers a feast.
(10) a. Your mother recommended a leap into the sea to us.
b. *Your mother recommended us a leap into the sea.

We believe that there are no genuinely significant generalizations to be made about the syllable structure or stress pattern that characterizes Dative Movement verbs. There does not even seem to be any real correlation (in the statistical sense) between occurrence in the Dative Movement construction on the one hand and monosyllabicity and/or initial stress on the other; monosyllabic and initially stressed verbs predominate in the lexicon in any event, and we have no reason to think that there is a statistically significant increased frequency of them among the Dative Movement verbs as opposed to the general population of verbs (we offer this as a challenge to any reader who might like to conduct a rigorous statistical study).

Nor does the behavior of speakers suggest that verbs that go against the putative phonological generalizations (either by permitting Dative Movement when they "ought not" to, like *guarantee*, or by failing to permit Dative Movement when they "ought" to, like *yell*, are felt to be in any way aberrant; there is no observable inclination for speakers to avoid these constructions, or for the constructions to disappear from the language through time, by the usual processes of regularization.

Certainly, there might be real generalizations about membership in the class of Dative Movement verbs--Green (1974) proposes rather complex semantic conditions and Storm (1977) suggests a correlation between morphological simplicity (monomorphematicity) and Dative Movement--but phonology appears to have nothing to do with the matter, exactly as our thesis would predict. To emphasize this point, we observe that the two most exception-free and productive generalizations we know of in this area have nothing to do with phonology: manner-of-speaking verbs (like *lisp* and *yell* in the table above) uniformly fail to occur in the Dative Movement construction, regardless of their phonology, and denominal means-of-communication verbs (like *cable*, *telephone*, and *radio* in the table above) uniformly permit the construction, again regardless of their phonology.

2. **Verbs taking particles in English.** Fraser (1976, sec. 1.3) examines the factors that determine which verbs can occur in the constructions illustrated in (11).

(11) a. She bolted down the flange plates.
b. She bolted the flange plates down.
(12) a. He ladled out a bowl of soup.
b. He ladled a bowl of soup out.

He concludes that there is some semantic determination, but that

> Surprisingly enough, it is the phonological shape of a verb that determines to a large extent whether or not it can combine with a particle. Kennedy (1920), Whorf [(1956)], and Fraser (1965) have all independently noted that the majority of verbs occurring with particles are monosyllabic and that the remainder are made up primarily of bisyllabic words which are initially stressed. Kennedy found in 988 cases...only one trisyllabic case, this being *partition* as in *partition up* and *partition off*. (There is also *apportion out* and *telephone in*.) We find that while there are numerous phonetically bisyllabic verbs occurring in verb-particle combinations, many of these cases may be analyzed as phonologically monosyllabic...In particular, these phonetically monosyllabic verbs...contain a final syllable liquid or nasal...Relatively few initially stressed phonologically bisyllabic verbs combine with particles...(Fraser 1976, 13-4)

Examples of the various types are listed in Table 2 below.

Table 2. English verbs occurring with particles

I. Monosyllables: act, bear, cut, drag, egg, flag, get, hand

II. Disyllables ending in syllabic sonorants: banter, clutter, fritter, ladle, parcel, saddle, siphon, tighten, widen

III. Other disyllables with initial stress: carry, auction, harness, measure, follow, cancel

IV. Disyllables with final stress: balloon, cement, collect, connect, consign, divide, explain

V. Trisyllables: apportion, partition, separate, summarize, telegraph, telephone

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Fraser's proposal is that phonological shape constrains the ability of a verb to combine with a particle: monosyllables and initially stressed disyllables are suitable candidates, but verbs of other phonological shapes are not.

First, we note that (as in the case of the Dative Movement verbs in the previous section) it cannot be surface structure phonology that is relevant here, for the progressive forms of verbs have the same properties as the base forms: the trisyllabic forms in *siphoning out* and *cluttering up* are just as acceptable as the initially stressed disyllabic forms *siphon out* and *clutter up*. If there is a generalization here, it concerns a phonologically determined rule feature.

However, there are exceptions (Fraser's complete lists are given in IV and V of Table 2), and these exceptions do not stand out in any way as being peculiar or as sounding semigrammatical when they occur with particles:

(13) a. Julius explained away his odd behavior by saying that Martians had gotten control of his mind.
b. Julius explained his odd behavior away by saying that Martians had gotten control of his mind.
(14) a. Robert telephoned in his grades: ten D's.
b. Robert telephoned his grades in: ten D's.

So we seem to have at best a tendency rather than a rule.

Moreover, again paralleling the case of Dative Movement verbs, the generalization fares very badly even as a tendency. Since the most common verbs in English are predominantly monosyllables and initially stressed disyllables, a predominance of these two phonological types in the list of particle-taking verbs is not surprising. No one has argued that these two phonological types occur in the list of particle-taking verbs significantly more than they occur in the whole population of verbs, which is what would be required to back up a claim that a phonologically governed tendency was at work. Even if such a tendency could be demonstrated, the history of the verb-particle combination would provide a straightforward reason, and sufficient explanation, for the predominance of two phonological types in the list of particle-taking verbs: the origin of the construction is in the Anglo-Saxon stratum of the vocabulary, the stratum in which virtually all the root morphemes are monosyllables or initially stressed disyllables. The construction has, however, been freely extended to the Romance stratum, as can be seen from the fact that the roots in IV and V of Table 2, all of them of Romance (or scientific Greek) origin, now occur with particles, as do such Romance-derived verbs as *flag*, *parcel*, and *cancel* in the earlier parts of the table.

Fraser gives two arguments that "the phonological shape of the verb does indeed play a dominant role in determining the possibility of a combination" (Fraser 1976, 14): first, that near-synonyms with different phonological structure have different properties:

(15) a. The chemist mixed up the solutions.
b. *The chemist combined up the solutions.
(16) a. She will fix up the error in the book.
b. *She will rectify up the error in the book.

and second, that the addition of one of the productive English prefixes both alters the phonological structure of the verb and changes its properties:

(17) a. Herman sewed up the hole in his shirt.
b. *Herman resewed up the hole in his shirt.

(18) a. The shopkeeper tried to polish up the counter.
b. *The shopkeeper tried to overpolish up the counter.

The first of these arguments carries little weight, since the historical explanation we offered above suffices to account for the differences in (15) and (16). The second argument can be countered by the observation that there is an independent, nonphonological, reason for the failure of prefixation in (17b) and (18b): the addition of a particle to a verb "freezes" the combination[2] in the same way that the addition of a productive prefix does. There are thus no combinations of two such prefixes (**reoverpolish*, **overpreheat*), or of two true particles[3] (**grow up out, *hand out down*), or of a particle with a prefix (as in the examples above), or even of a particle with a suffix of derived nominalization (compare (19) with (20)).

(19) a. Jeremy quickly grew.
b. Jeremy quickly grew up.
(20) a. Jeremy's quick growth was astonishing.
b. *Jeremy's quick growth up was astonishing.

We have argued that Fraser's phonological generalization about verbs taking particles is spurious. However, even if it had survived scrutiny, it would not have been a serious threat to the PPFS. To see this, notice first an important difference between the putative constraint in the previous section and the putative constraint in this section. What was at issue in the first case was, in transformational terms, the applicability of a rule of Dative Movement--in more neutral terms, the existence of one construction type (with a ditransitive verb) as an alternative to another (with a transitive verb in construction with a prepositional phrase with *to*).

What is at issue here is not, in transformational terms, the applicability of a transformational rule; in particular, it has not been claimed that the rule of Particle Movement is constrained by the phonological form of the verb. Instead, it is the very ability of a verb to combine with a particle (whether the particle is adjacent to the verb or separated from it) that is the object of the putative constraint. We are still dealing with a syntactic principle, however (in transformational terms, with a phrase structure rule rather than a transformational rule), and ordinarily a phonological constraint on a phrase structure rule would be as contrary to the PPFS as a phonological constraint on a syntactic principle relating two constructions. What makes the current example special is the lexical character of verb-particle combinations.

It is well known that particles do not combine freely with verbs. There are many apparently arbitrary gaps: *fritter away/*fritter off, *parcel away/parcel off*, and the like. Moreover, the semantics of the occurring combinations is often not compositional; there are many examples like *cut out* 'stop' and *give up* 'abandon'. Both of these facts suggest that many, possibly most, verb-particle combinations must be listed as lexical items. The syntactic component should then not be duplicating the information about which verb-particle combinations happen to occur. Rather, the combination of V (of the appropriate subclass of verbs) and Prt occurs in the preterminal structures supplied by the syntactic component; pointers to individual verbs and particles are added in terminal structures; and then only certain of these combinations of verb pointers and particle pointers, namely those for which there are lexical entries, will have words inserted into them.

On this analysis, the syntactic component has no constraints, phonological or otherwise, on which verbs can take particles. If there were a real generalization governing the matter, it would be a generalization about the internal properties of a set of phrasal combinations that happen to occur in the lexicon, analogous to generalizations about the internal properties of a set of actually occurring (rather than potential) words. There is some question in our minds as to whether it makes sense to speak of "actually occurring" (rather than potential, or possible) phrasal combinations, just as there is about talk of "actually occurring" words. And if the question is a sensible one, we are not convinced that generalizations about the internal properties of such combinations can have phonological content. But if they did, that would be a fact about the contents of the lexicon, not about syntactic rules.

Notes

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[1] The issue we raise here was first brought to our attention by J. Bruce Fraser; it appears not to have received any significant discussion in print until Green (1974) dealt with it.

[2] This useful metaphor is due to J. R. Ross.

[3] See Fraser (1976, ch. 2) for a treatment of elements that are only apparent particles.

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The Unaccented Pronoun Constraint in English*

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1. **The problem.** It has long been known that unaccented personal pronouns are unacceptable in certain positions in English, as in the (b) sentences below.

(1) a. We took in the unhappy little mutt right away.
    b. *We took in hĭm right away.

(2) a. Martha told Noel the plot of *Gravity's Rainbow*.
    b. *Martha told Noel ĭt.

(3) a. $\left\{\begin{array}{l}\text{Across the plains}\\ \text{Down}\end{array}\right\}$ came the Twentieth Century Limited.
    b. $\left\{\begin{array}{l}\text{*Across the plains}\\ \text{Down}\end{array}\right\}$ came ĭt.

(4) a. Posing on the couch was Henry Kissinger.
    b. *Posing on the couch was hĕ.

(5) a. "Gee whillikers!" exclaimed Oona with great feeling.
    b. *"Gee whillikers!" exclaimed shĕ with great feeling.

The accent condition is crucial, since accented personal pronouns are acceptable in such cases:[1]

(6) They took in hér, and we took in hím.

(7) "Gee whillikers!" exclaimed shé, of all people.

Pronouns other than personal pronouns bear some inherent accent, and as a result the constraint will not apply to them; compare (8)-(11) below with the (b) examples in (1)-(5).

(8) We took in someone.

(9) Noel told Martha a dirty story, and then Martha told Noel one.

(10) Across the plains came something.

(11) Posing on the floor was one former Secretary of State, and posing on the couch was another.

Also, since coordinations of personal pronouns bear some accent, the constraint does not apply to them either:

(12) We took in him and her.

Clearly this constraint is phonological at least to the extent of referring to accent.

2. **A discourse structure explanation?** One plausible hypothesis about the data in (3) and (4) above is that the function of the complement+verb+subject construction in them is to introduce, or present, objects or persons new to a discourse; Bolinger (1971, 584) speaks of the "adverbial inversion that characterizes the type of sentence that might be called presentational, in which the referent of the subject is introduced on the scene". Another plausible hypothesis is that the position of the subject after the verb in (3) and (4) reflects this function, since sentences tend to be structured with new information following old. And a third plausible hypothesis is that such a postponed subject could not therefore lack accent, since it neither conveys old information (does not refer to something already given in the discourse or assumed in the context) nor describes something new but of little consequence to the discourse. That is, on this account the postponed subject in (3) and (4) **must** bear accent, because it is too important to its discourse not to.

Though I am sympathetic with attempts at discourse structure explanations of apparently grammatical phenomena, I believe that this particular instance of such an explanation does not cover all the data. To begin with, the constructions of (1) and (2) are not presentational in function; the direct object in (1) and (2) can quite easily refer to established topics. To see this, compare the (invented) discourses in (13) and (14) with those in (15) and (16).

(13) We saw the unhappy little mutt as it shivered on the corner. We walked up to the unhappy little mutt, and it pathetically licked our hands. We took in the unhappy little mutt right away.

(14) Martha told Peter the plot of *Gravity's Rainbow*. Martha told Oliver the plot of *Gravity's Rainbow*. Martha told Noel the plot of *Gravity's Rainbow*.

(15) ?The Twentieth Century Limited left New York on a bright September morning. Thousands cheered the Twentieth Century Limited as it left Chicago a day later. Across the plains came the Twentieth Century Limited.

(16) ?Primping before the mirrors was Henry Kissinger. Stripping off his clothes was Henry Kissinger. Posing on the couch was Henry Kissinger.

Moreover, the construction in (5), which does have a postponed subject as in (3) and (4), is not basically presentational:

(17) Oona carefully poured the nilotic acid into the vat. Visions of El Dorado and sugar-plum fairies swam before Oona's eyes as the mixture foamed wildly. "Gee whillikers!" exclaimed Oona with great feeling.

In fact, even the postponed subjects in (3) and (4) can be coreferential with an NP already introduced, so that they cannot be seen as **invariably** supplying new information:

(18) The committee sat anxiously around the oak table, waiting for Ronald to arrive and hoping he would agree with their decision. Into the board room stróde Rònald, and they all stood up to greet him.

(19) Henry Kissinger had always been one of my heroes. For years I had hoped I would meet Henry Kissinger. Then one day I arrived at the studio and found a great surprise there. Posing on the couch wás Hènry Kìssinger.

(Note that while *Ronald* and *Henry Kissinger* are not without accent in the last sentences of these discourses, they are nevertheless subordinated in accent to a neighboring constituent.)

Finally, sentences like (10) above and (20) below show that the information supplied by postponed subjects can be minimal.

(20) Posing on the couch was someone.

I conclude that the discourse structure account sketched above could address itself only to (3) and (4), and that even for these cases it is seriously flawed. I turn next to one style of grammatical account for the data.

3. **A rule-particular constraint?** It was traditional in transformational grammar to see the constraint illustrated in (1)-(5) as one applying to particular rules of English[2]. On this view, what blocks (1b) is a condition on Particle Movement that makes the rule obligatory when the direct object is an unaccented personal pronoun; compare

(21) We took hĭm in right away.

And what blocks (2b), on this account, is a condition on Dative Movement that prevents it from applying when the direct object is unaccented personal pronoun; compare

(22) Martha told ĭt to Noel.

And what blocks (3b), on this account, is a similar condition that prevents Presentational Inversion from applying when the subject is an unaccented personal pronoun; compare

(23) $\left\{\begin{matrix}\text{Across the plains}\\ \text{Down}\end{matrix}\right\}$ ĭt came.

Example (4b) is a bit more complex, since Presentational Inversion is obligatory with *be* --[3]

(24) *Posing on the couch Henry Kissinger was.

I will assume that the noninverted clauses like (25) have a binary, NP+VP, structure, while the corresponding inverted construction is ternary, comprising V (a form of *be*), nonfinite VP, and (subject) NP; the order of these constituents must be VP+V+NP, as in (4a) versus (24). Presumably what blocks (4b), then, is a special constraint that requires VP+NP+V order for the Presentational Inversion construction when the subject NP is an unaccented personal pronoun.

(25) Henry Kissinger was posing on the couch.

Finally, (5b) is just like (3b): Quotative Inversion must be inapplicable when the subject is an unaccented personal pronoun; compare (26).

(26) "Gee whillikers!" shĕ exclaimed with great feeling.

Even if all the subject-verb inversions can somehow be collapsed into one rule, there are still three separate rules of English subject to a phonological constraint, at least in the standard view of the matter. Moreover, the cases have nothing in common--in two cases, Particle Movement and Dative Movement, the constraint involves the direct object (though in the former case the rule is made obligatory, while in the latter the rule is prevented from applying), yet in the remaning inversion cases, the constraint involves the subject. There are then two problems: Not only do these cases apparently involve a violation of the Principle of Phonology-Free Syntax (Zwicky and Pullum 1986), but they also apparently share no element of structure. If there can be rule-specific constraints of this sort, then there could be a language just like English except that the constraint on Dative Movement referred to **indirect** object rather than the direct object, and another language just like English except that the constraint on Dative Movement **prevented** it from applying instead if requiring it to apply. And so on.

Despite the disparities among these conditions, they seem to be related to one another, and the fact that they have been stated as (at least) three independent conditions means that standard descriptions of English repeat what is essentially one condition.

4. **A syntactic filter analysis.** The first attempt in the generative literature to subsume the Particle Movement and Dative Movement facts under a single generalization was made by Ross (1967, sec. 3.1), who proposed a single 'Output Condition on Post-Verbal Constituents' designed to cover not only these facts but also the preference for the (a) variants over the (b) variants in examples like (27) and (28).

(27) a. I passed up all the alternatives that had been offered to me.
b. ?I passed all the alternatives that had been offered to me up.

(28) a. I sent to Robin every message that had come across my desk in weeks.
b. ?I sent every message that had come across my desk in weeks to Robin.

Ross' syntactic filter does not cover the examples involving subjects (Presentational Inversion and Quotative Inversion), however. And I believe that any attempt to combine the 'length and compexity' constraints illustrated in (27) and (28) with the unaccented pronoun constraint illustrated in (1) and (2) is misguided. The length and complexity constraints are manifested in a complex pattern of graded judgments of relative (un)acceptability--that is, as a set of stylistic (dis)preferences on the part of speakers--whereas the unaccented pronoun constraint is manifested in sharp grammaticality judgments.

I am not denying here that the length and complexity constraints and the unaccented pronoun constraint might arise from the same general 'functional' motive, namely to avoid the sequence of a long, heavy constituent followed by a short, light constituent at the end of a sentence. What I am claiming, however, is that this functional consideration has been grammaticized in English in one class of cases, involving unaccented personal pronouns (but remains only as a stylistic preference in the other cases).

5. **A prosodic filter analysis.** A satisfactory solution must begin with the exhibition of some thread common to the various cases. To achieve these, I will scrutinize cases where unaccented personal pronouns **are** acceptable.

The most obvious environments are subject pronouns in subject position and direct object pronouns in object position (immediately following a verb or preposition with which the pronoun is in constuction):

(29) Shĕ destróyed hĭm becáuse ŏf ĭt.

(30) Hĕ hăd táken ĭt fróm thĕm.

(These examples show, incidentally, that it cannot merely be sentence-final or postverbal position that determines ungrammaticality, as might be thought from a hasty examination of (1)-(5).)

Both subject and object pronouns are fine unaccented and in construction with a following quantifier:

(31) Wĕ bóth adore penguins.

(32) Gary took it from thĕm áll.

Unaccented indirect object pronouns are acceptable not only with the preposition *to* or *for*, but also following the verb:

(33) We offered a walnut quince pie tó hĭm.

(34) We óffered hĭm a walnut quince pie.

Unaccented possessive pronouns are acceptable in construction with a following noun:

(35) Hĭs aunt and hĕr uncle were yŏur cousins.

The pronouns in examples (29)-(35) do have a common property: all are prosodically attached to adjoining material to form a prosodic phrase with it, that is, all are **leaners**, in the sense of Zwicky (1982). Subjects are attached to the following verb, direct objects and 'moved' indirect objects to the preceding verb, prepositional objects to the preceding preposition, pronouns in construction with a following quantifier to that quantifier, possessives to a following noun. In (29')-(35') I indicate prosodic phrasings for (29)-(35) by means of square brackets; these are not, of course, the only possible phrasings (in general, a sentence can have a number of acceptable phrasings).

(29') [Shĕ destróyed hĭm] [becáuse ŏf ĭt].

(30') [Hĕ hăd táken ĭt] [fróm thĕm].

(31') [Wĕ bóth] [adòre pénguins].

(32') [Gàry tóok ĭt] [frŏm thĕm áll].

(33') [Wĕ óffered] [ă wàlnut quìnce píe] [tó hĭm].

(34') [Wĕ óffered hĭm] [ă wàlnut quìnce píe].

(35') [Hĭs áunt] [ănd hĕr úncle] [wĕre yŏur cóusins].

An attached pronoun is not necessarily adjacent to the head of its phrasal constituent. Pronouns can, for instance, attach to modified phrases--subjects to phrases beginning with adverbs, as in (36a). And possessives can attach to nominal phrases beginning with adjectives, as in (37a), or numerals, as in (38a). The (b) examples have nonpronominal NPs in place of the pronouns in the (a) examples.

(36) a. [Shĕ nearly] [destroyed him].
b. [The angel] [nearly] [destroyed him].

(37) a. [Hĭs elder aunt] [is a doctor].
b. [Robin Smith's] [elder aunt] [is a doctor].

(38) a. [Hĕr two kangaroos] [are in the zoo].
b. [Kelly Robinson's] [two kangaroos] [are in the zoo].

Turning now to subject-verb inversions other than those in (3)-(5),[4] I observe that attached pronouns are acceptable throughout. This is so for the inversions in questions--

(39) Was hĕ posing on the couch?

(40) When did shĕ learn that pigs can't fly?

and in various tags--

(41) He isn't dangerous, is hĕ?

(42) Posing on the couch, was hĕ?

(43) Give me a persimmon tart, will yŏu?

and in formal 'counter-to-fact' conditionals--

(44) Were shĕ prime minister, she would dissolve parliament.

and in sentences with preposed negatives--

(45) Not only would hĕ eat the snails, he also enjoyed the brains in black butter.

My proposal to account for the facts in (1)-(5) above will depend on the assumption that what is wrong in (1b)-(5b) is that the pronouns have failed to attach to their verbs. In (29)-(45) attachment takes place, but in (1b)-(5b) it is blocked; those pronouns could occur accented, as in (6) and (7), but without accent they are unacceptable. That is, I am proposing the following filter for English, the Unaccented Pronoun Constraint (UPC):[5]

(46) If [N, +DEF, +PRO] constitutes a prosodic phrase by itself, then it must bear accent.

What (46) rules out is a prosodic phrase containing nothing but an unaccented personal pronoun. It is a filter on **prosodic** structures, rather than (directly) on syntactic structures, and so falls into the same class of conditions as the filter barring 'stranded *to*' as in Zwicky (1982) (which prohibits prosodic phrases containing nothing but infinitival *to*, whether accented or not) and the filter barring accented nonfinite anaphoric auxiliaries as in Zwicky and Levin (1980) and Zwicky (1986). These prosodic filters are illustrated in (47) and (48), respectively.

(47) a. We must go. [Nót to] [would be rude].
b. We must go. *[Tó] [would be rude].
*[Tŏ would] [be rude].

(48) a. Did they finish? [Everybody] [múst have] [by now].
[Everybody] [must háve finished] [by now].
b. Did they finish? *[Everybody] [must háve] [by now].

6. **A condition on prosodic phrasing in English.** The constraint in (46), however, is only part of the story. I must still explain why attachment should fail in (1b)-(5b). (The reasoning here is entirely parallel to the reasoning in the case of stranded infinitival *to*. It is not sufficient to claim that stranded *to* is unacceptable; we must also frame conditions on the reattachment of *to* to neighboring material in such a way that this reattachment is possible in (47a) but not in (47b).)

6.1. **Some basic assumptions.** Notice first that the problem in (1b)-(5b) concerns only pronouns that have failed to attach to **preceding** elements. Attachment to following elements, as in (29)-(32) and

(35)-(38), is relatively unproblematic, although pronouns must be barred from attaching to following sentence adverbials in examples like (1b) and (5b). Assuming, as in (49), that prosodic structure generally follows syntactic structure, the only examples that require special comment are those like (29) and (30), among others, where subject pronouns attach to their following VPs. This attachment possibility is specifically allowed by condition (50). Notice that neither (49) nor (50) would permit attachment of pronouns to following sentence adverbials.

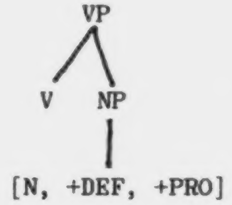
(49) Syntactic phrases are prosodic phrases except as stipulated otherwise.

(50) A personal pronoun subject can form a prosodic phrase with the VP following it.

In this discussion I am thus assuming some variant of the proposal in Gee and Grosjean (1983), in which prosodic organization is built up on the basis of syntactic structure; (49) corresponds to their Syntactic Constituent Rule and (50) to a subcase of their Verb Rule. The question is now what the conditions are on the attachment of personal pronouns to **preceding** material.

6.2. **Attachment to the left.** The paradigm of such attachment is the case of objects, whether direct or indirect, attaching to an immediately preceding verb. The configuration here, omitting irrelevant surrounding material and an actual lexical verb, is that in (51). There are three aspects of this configuration I will take to be crucial in determining attachment possibilities: (a) the constituent to which the pronominal NP is attached--its **prosodic host** (PH), as I shall call it here--is a lexical category (in (51), it is a V); (b) the PH is a sister of that NP; and (c) the PH governs the case features on the NP. These clauses are generalized in the attachment condition in (52).

(51)



(52) A personal pronoun NP (PPNP) can form a prosodic phrase with a preceding PH only if the following conditions are satisfied:
a. the PH and PPNP are sisters;
b. the PH is a lexical category;
c. the PH is a category that governs case-marking.

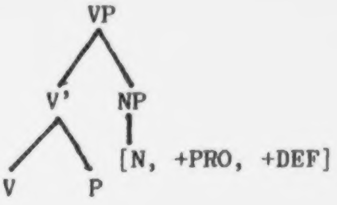
This formulation immediately generalizes from V+object examples of the form in (51) to P+object examples, as in (29) and (30), and A+object examples, as in (53) and (54), since V, P, and A all govern case-marking.

(53) I think I'm nearer thĕm than you are.

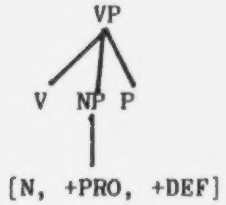
(54) That photograph isn't very much like hěr.

6.3. **Blocked attachment.** What of the original cases in (1b)-(5b), where attachment is blocked? In (1b), the VP configuration is as in (55); compare the ternary structure of the Particle Movement construction, in (56). In (55) V' cannot be a PH for the PPNP, because it is not lexical, and P cannot be, because it is not a sister of the PPNP. In (56), on the other hand, V satisfies all three of the requirements in (52).

(55)

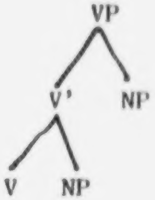


(56)

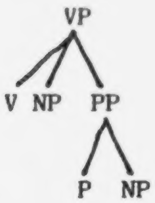


The case of Dative Movement, in (2), involves VPs of the form V+NP+NP, which I assume to have the internal structure in (57). If the direct object, the second NP here, is a PPNP, then it cannot be attached to its preceding sister, because that sister is not a lexical category; the indirect object, the first NP in (57), can of course attach to its sister V. The prepositional alternative construction, with VPs as in (58), allows either object to attach to the left--the direct object to its sister V, the indirect object to its sister P.

(57)



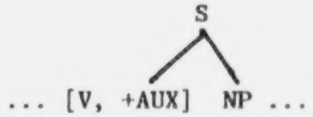
(58)



Examples (3)-(5) are inversion constructions, all three exhibiting what Green (1985) refers to as 'inversions over "V"'--over motion verbs in (3), the verb *be* in (4), verbs of saying in (5)--in contrast to the inversions over a single auxiliary V, illustrated above in

(39)-(45). Inversions over a single auxiliary V yield substructures like the one in (59), in which the subject NP is a sister of the preceding V, so that the three conditions in (52) are satisfied and a PPNP can attach to the V.

(59)



The examples in (3)-(5) are different, in that the inversions there aren't necessarily limited to a single word; a modal or an adverb can move along with the verb, as in (60) for Presentational Inversion with a motion verb, (61) for Presentational Inversion with *be*, and (62) for Quotative Inversion.[6] The inverted verbal material in these examples is underlined.

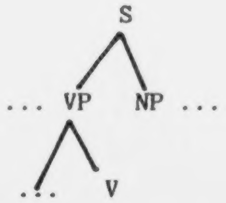
(60) $\left\{\begin{array}{l}\text{Across the plains}\\ \text{Down}\end{array}\right\}$ would come the train every few days.

(61) Posing on the couch will be a handsome mailman.

(62) "Gee whillikers!" suddenly exclaimed Oona with great feeling.

Given these facts, I assume that what is inverted in these constructions is not just V but actually VP (which might of course have a single daughter, V), so that the relevant substructures are as in (63) rather than (59). In (63), if the subject is a PPNP it cannot attach to VP (which is its sister, but is a phrasal rather than lexical category) or to V (which is a lexical category of the right sort, but is not a sister of the subject NP), and so it must remain unattached--and by the UPC, (46), must be accented.

(63)



6.4. **Summary.** I have now worked through all the cases enumerated at the beginning of this article. Two pieces of descriptive apparatus are involved: a constraint on pronoun attachment in English, stated in (52), and a prosodic filter for the language, stated in (46). No rule-particular constraint is involved, much less any such constraint involving the phonological feature of accent.

On this analysis, accents can be distributed freely on constituents, subject to restrictions resulting from the meanings and/or functions of the accents themselves, and subject to parochial constraints like (46).

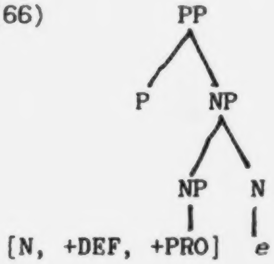
6.5. **Further data.** The analysis makes some predictions beyond these original data. In particular, it predicts that an 'orphan' personal pronoun--one functioning as part of a larger construction, the remainder of which is empty--cannot occur without accent. What I have in mind are examples like (64) and (65), with isolated possessives.

(64) Stephen offered me a wrench, but I insisted that he give me twó of his.

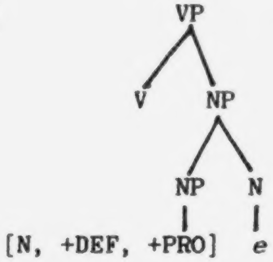
(65) Tanya told me that all the horses had passed the half-mile mark in a bunch, but there was so much dust we could scarcely sée hers.

In both examples the sentence-final pronouns must bear some accent (though not of course as much as the preceding emphatically accented words do). And in neither example is the only eligible PH (the P *of* in (64), the V *see* in (65)) a sister of the possessive NP; the configurations are at least as complex as the structures in (66) and (67), for which (52) will not license a reattachment of this NP to the left.

(66)



(67)



(The problem is not that the pronouns are followed by empty or anaphoric constituents, as can be seen by comparing (64) and (65) with the accusative+infinitive and accusative+gerundive constructions in (68) and (69).)

(68) Ursula was sure the monkeys would soon finish typing out *Finnegan's Wake*, but Viola really didn't expect thĕm to.

(69) Walter believes that Jane Austen wrote erotic novels under a pseudonym, but no one else can imagine hĕr.

One further issue concerns multiple attachment. There is,somewhat surprisingly, a contrast between on the one hand the ungrammatical examples in (70) (=(2b)) and (71), with an accented independent indirect object pronoun, and on the other hand the grammatical examples in (72) and (73), with **two** unaccented objects.

(70) *Martha told Noel Ĭt.

(71) *Martha told hím Ĭt.

(72) Martha told hĭm Ĭt.

(73) Aaron showed hĕr thĕm.

The question is how these data are to be described. If (52) affects a lexical PH (of category *C*) by attaching a PPNP to it, in a literal sense of 'attach', then the result of attachment should also be a unit of category *C*, and further attachment should be possible. Just this seems to be what happens in examples like (72) and (73)--which suggests that (52) should assign syntactic categories to prosodic phrases and should be able to apply to its own output.

Finally, there is evidence, originally put forth by Wasow (1975) and discussed at some length by Jacobson (1982, sec. 2), that a trace intervening between a verb and a personal pronoun object can block the attachment in (52). The judgments are subtle ones, involving a contrast between the imperfect (b) examples in (74) and (75) below and the ungrammatical (c) examples.

(74) a. It's hard to tell those children the stories.
b. ?Those children are hard to tell the stories.
c. *Those children are hard to tell them.

(75) a. John gave someone the book.
b. ?Who did John give the book?
c. *Who did John give it?

The constructions involved are Tough Movement in (74) and WH Movement in (75). A trace condition on (52) would be no surprise, given the fact that traces seem quite generally to block phonological rules of external sandhi (Rotenberg 1978) and cliticizations (Bissantz 1985).

7. **An alternative prosodic analysis.** A somewhat different, though still prosodically based, proposal, is made by Selkirk (1984, sec. 7.2.2.4). The first prong of this analysis is that personal pronouns are subject to generalizations about monosyllabic function words in English, generalizations having the following effect: 'If they are not phrase-final, then they should destress.' (Selkirk, 392)

Systematic exceptions to these generalizations must be made for auxiliaries, as in (76), as well as for some instances of personal pronouns. The generalizations then cover prepositions, which must be accented when stranded, as in (77), and determiners and conjunctions/complementizers, which for the most part do not occur phrase-finally for syntactic reasons. It is not clear to me that these generalizations cover enough ground to be valid.

(76) They must hăve.

(77) *Who did you give it tŏ?

I also believe that I made a good case above that phrase-final position is not the relevant variable for determining the grammaticality of unaccented personal pronouns in English. Among other things, the occurrence of a final monosyllabic adverb like *then* or *now* makes no difference to the grammaticality of unaccented pronouns:

(78) a. Down the river the big ships came (then).
b. Down the river came the big ships (then).

(79) a. Down the river they came (then).
b. *Down the river came they (then).

The second prong of Selkirk's analysis copes with the fact that unaccented pronouns do in fact occur phrase-finally; this is a 'syntactic restructuring' rule 'encliticizing pronouns to a preceding verb or preposition' (393) and so having some of the same effects as my (52). I have two disputes with this treatment: (a) I see no reason to posit a **syntactic** rule of attachment; and (b) I see no reason to think that the unaccented pronouns are in fact **clitics**. With reference to (a): Selkirk's evidence for a syntactic rule is that the conditions on the rule refer to syntactic structure--but conditions on the syntax-prosody pairing surely refer to syntactic structure as well, and (52) is just such a condition. With reference to (b): Though I know of nothing that would actually speak against the assumption that the unaccented pronouns are clitics, I also know of nothing that would specifically speak for the idea--and I believe that it takes positive evidence to assume clitics, since these are special, marked morphosyntactic entities (in contrast to leaners, which are commonplace).

Notes

*The bulk of this paper (couched within the framework of transformational grammar, as might still be detectable in the current version) was completed at the University of Sussex in the autumn of 1977, under the auspices of a Fulbright Research Fellowship in the Laboratory of Experimental Psychology. My thanks to the Fulbright staff in Washington and London, to my sponsor Christopher Longuet-Higgins and other colleagues at Sussex, and to members of audiences at Sussex, Cambridge, and Lancaster, on whom I tried out earlier versions of the ideas reported here. Geoffrey K. Pullum's contributions were considerable, but I am taking the credit, and the blame, nevertheless. This version was lightly edited and amended in April and May 1986.

[1] I have given no examples with accented *it*, to correspond to (2b) and (3b), because for a great many speakers these examples are ungrammatical--but for a reason that has nothing to do with the point at issue here. These speakers (including, among the linguists of my acquaintance, James Thorne and Jorge Hankamer) simply find **all** occurrences of accented *it* ungrammatical, even contrastive cases like *The dog ate its chicken, and then the cat ate íts.*

[2] Thus Chomsky (1957, sec. 7.4) makes Particle Movement obligatory when the direct object is a pronoun, a treatment taken over by Jacobs and Rosenbaum (1968, 106), who also stipulate (145) that Dative Movement is blocked when the direct object is a pronoun. The observation that what I have here called Presentational Inversion is blocked when the subject is a pronoun first appeared in the literature on generative grammar (to my knowledge) in Green (1974, 169), where it is attributed to Fred Lupke.

[3] Examples like (24) are grammatical as instances of Topicalization, in which case they can be produced with a comma intonation at the end of the topicalized constituent (*Posing on the couch, Henry Kissinger was*), but they are not grammatical as instances of Presentational Inversion.

[4] A convenient inventory of the various types of subject-verb inversions in English has been provided by Green (1985).

[5] I owe the germ of this proposal to David Stampe.

[6] For reasons I do not understand, Presentational Inversion is blocked for adverbs--*_Across the plains quickly came the train_--while Quotative Inversion is blocked for modals--* _"Gee whillikers!" would exclaim Oona whenever she saw a toad._ These complications do not directly affect the argument based on (60)-(62), since what is involved in not the inversion of V rather than VP, but the blocking of any inversion at all.

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WH Constructions in English*

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My purpose here is to survey the major facts about English clausal constructions involving the 'wh' words of the language, listed in (1). My intention is to describe the range of facts that an adequate syntactic description of English (and its accompanying semantics) must cover. This is a reference work; I am grinding no theoretical axes.

(1) WH: how, what, when, (whence), where, whether, which, (whither), who, whom, whose, why

WHC: a clause containing WH, such as *where she went, in whose hat they laid the eggs, from the top of which it alighted*

I deliberately exclude from consideration a large collection of idiomatic constructions involving WH, such as those in (2). The external distribution of these constructions might be of interest, but I assume that in the present context their internal syntax is idiosyncratic, so that generalizations about English cannot be expected to cover them.

(2) or WH: Did you sneeze, or what?
what with: What with all the noise, I never could concentrate.
what for: What did you do that for?
how come: How come it exploded?
who BE who: Everybody who was who was there.
why not: Why not paint your house purple?
say when: She started pouring, and told me to say when.

The literature, both descriptive and theoretical, on WHCs in English is enormous. I do not pretend to be surveying this literature here. Much can be learned from the compendious reference grammars of English. In addition, dissertations on particular types of WHCs--for instance, Baker (1968), Elliott (1971), Higgins (1976), Hirschbühler (1979), and Delahunty (1982)--survey the literature up to the time of their writing and so can be consulted with bibliographic profit.

The constructions I will be concerned with are named and exemplified in the outline below; in each case the WHC is enclosed in square brackets.

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Copular clauses

CL - Cleft sentence: *It was Kim [who stole the tarts].*

PC - Pseudocleft sentence: *[What we saw] was a dog.*

(Both constructions have the property of connectedness: the clefted XP in the construction is subject to the syntactic conditions appropriate to the slot filled by WH in WHC, so that the examples above share syntactic conditions with *Kim stole the tarts* and *We saw a dog.* Connectedness is particularly striking with respect to reflexive pronouns, as in *It was themselves that Sandy and Kim saw* and *What Sandy and Kim saw was themselves.*)

Relatives

Nominal modifiers

RR - Restrictive relative: *The penguin* [*which we discovered on the porch*] *was obviously lost.*

AR - Appositive relative: *This penguin*, [*which we discovered on the porch*], *was obviously lost.*

(Note the distinction between these constructions and amount relatives (Carlson 1977), as in *Every lion* [*there is*] *eats meat.* Amount relatives share many properties of comparatives, including the rejection of WH: *_Every lion which there is eats meat._ They do permit relativizing *that*, however: *Every lion that there is eats meat.* As Carlson points out, these properties are shared by superlative relatives: *He put the best/only players* [(_that/*which_) he could] *into the game.*)

Clause modifiers

CM - Concessive modifier: [*Whatever they did*], *Robin remained apathetic.*

Noun phrases

FR - Free relative: [*What we found*] *bit me on the leg.*

CR - Concessive free relative: [*Whatever they did*] *made Robin unhappy.*

Interrogatives

MQ - Main question: [*What do you see*]?

XQ - Echo question: [*You think you saw WHAT*]?

(This construction, unlike all the others, does not require an introducer WH phrase, that is, a WH phrase at the beginning of WHC. This difference makes it so hard to compare usefully to the other constructions that I have left it out of the table below.)

EQ - Embedded question: *I wonder* [*what you saw*].

Exclamations

ME - Main exclamation: [*What a good dog you are*]!

EE - Embedded exclamation: *It amazes me* [*what a good dog you are*].

****

I now enumerate a series of tests that distinguish among the various WH constructions just listed. It might well be that a number of the properties I refer to here can be deduced from the semantic content or the pragmatic function of the constructions involved, though I have tried to emphasize properties that are to some degree arbitrary from the point of view of semantics and pragmatics. Note that asterisks are assigned to particular sentences as exemplars of the constructions named; a number of these unacceptable strings are in fact acceptable as exemplars of other constructions (complements rather than relatives, for instance).

****

0. Tests distinguishing main clause phenomena from embedded clause phenomena: MQ is distinguished from EQ, and ME from EE, in many of the same ways that main declaratives are distinguished from embedded declaratives. In particular, there are constructions limited to main clauses, such as (for many speakers) the interrogative introducer *how come* and the interrogative tag *or WH*:

+ How come you're making spaghetti? [MQ]
- *How come you're making spaghetti baffles me. [EQ]

+ Are you leaving now, or when? [MQ]
- *I asked whether she was leaving then, or when. [EQ]

1. Tests favoring interrogatives of one sort or another

1A. Permits *what* as introducer:

+ What did Herman notice? [MQ]
I wonder what Herman noticed. [EQ]
What Herman noticed! [ME]
It amazes me what Herman noticed. [EE]
Whatever Herman noticed, what *I* saw was an alligator. [CM]
Whatever Herman notices distresses him. [CR]
What Herman noticed was an ivory spoonbill. [PC]
What Herman noticed just bit him. [FR]
- *The bird, what Herman just noticed, is an ivory spoonbill. [AR]
*The thing what Herman noticed was an ivory spoonbill. [RR]
*It was an ivory spoonbill what Herman noticed. [CL]

(Only appositive and restrictive relative clauses and clefts reject *what*.)

1B. Permits *how* as introducer:

+ How do I get the frambis in? [MQ]
I realized how to get the frambis in. [EQ]
How they dance! [ME]
I'm astonished how they dance. [EE]
However they dance, I get nervous. [CM]
However they dance is peculiar. [CR]
How to do it is with a pick-axe. [PC]
How they do it improves on my method. [FR]
- *The manner, how she did it, was ingenious. [AR]
*The way how she did it was with a samurai sword. [RR]
*It was with a pick-axe how she did it. [CL]

(As in 1A.)

1C. Permits WH+*else* as introducer:

+ Where else did he go? [MQ]
I can't imagine where else he went. [EQ]
What else they noticed! [ME]
It's scandalous what else they noticed. [EE]
Wherever else he went, he saw herds of elk. [CM]
Whatever else he saw must have bothered him. [CR]
What else he saw was a crested grebe. [PC]
- *What else she had in her hand gave off the scent of amber. [FR]
*The cat, which else was chasing birds, jumped into the air. [AR]
*The bird which else he saw was a bald eagle. [RR]
*It was an ivory spoonbill which else Herman noticed. [CL]

(Like 1A and 1B, except that free relatives are also out.)

1D. Permits *which/what*+N as introducer:

+ What/Which lamp would you like? [MQ]
I wonder what/which lamp you'd like. [EQ]
What/Which lamp you picked out! [ME]
I'm astonished what/which lamp you picked out. [EE]
Whatever/Whichever lamp you choose, I'll be nasty. [CM]
Whatever/Whichever lamp you chose is on the truck now. [CR]
?The eagle, which bird Herman just noticed, is alarmed. [AR]
- *What/*Which bird Herman noticed was an ivory spoonbill. [PC]
*What/*Which stone he had in his hand sparkled. [FR]
*The eagle which bird Herman just noticed will attack him. [RR]
*It was an ivory spoonbill which bird Herman noticed. [CL]

(Yet another pattern, with restrictive relatives,
pseudoclefts, free relatives, and clefts out.)

1E. Permits multiple WH:

+ Who went where? [MQ]
I know who went where. [EQ]
Who went where that night! [ME]
It's incredible who went where that night. [EE]

Whoever went wherever that night, the party went on. [CM]
What she put where was the carving knife on the sideboard. [PC]
- *Whatever she put wherever broke her toes. [CR]
*The knights, who went where, were sentenced to death. [AR]
*The knights who went where were sentenced to death. [RR]
*It was the carving knife on the sideboard which she put where. CL]

(Still another pattern, in which concessive, appositive, and restrictive relatives pattern with clefts.)

1F. May contain CL:

+ Who was it who ate the tarts? [MQ]
Who it was who ate the tarts is a mystery. [EQ]
What it was they had in their hands! [ME]
It astonished me what it was they had in their hands. [EE]
Whoever it was that ate the tarts, they're in bad trouble. [CM]
Whatever it was that they had in their hands sparkled. [CR]
What it was that they had in their hands was white sand. [PC]
- *What it was that they had in their hands sparkled. [FR]
*Kim, who it was that ate the tarts, is horribly sick. [AR]
*The person who it was that ate the tarts is in bad trouble. [RR]
*It was Robin who it was that ate the tarts. [CL]

(Like 1A and 1B.)

1G. WH may have modifying relative clause:

+ Who that/who likes kumquats will be there? [MQ]
I wonder who that/who likes kumquats will come to the party. [EQ]
Who that/who is famous came to the party! [ME]
It's amazing who that/who is famous came to the party. [EE]
?Whoever that/who is at the party asks questions, keep silent. [CM]
?Whoever that/who was there ate the kumquats will be punished. [CR]
- *What that/which I saw there was on the table was a copper box. [PC]
*What that/which I saw there was on the table sparkled nicely. [FR]
*Robin, who that/who liked kumquats can speak Spanish, was there. [AR]
*The people who that/who liked kumquats came there were few. [RR]
*It was Robin who that/who liked kumquats could speak Spanish. [CL]

(Yet another pattern, uniting interrogatives, exclamations, and concessives.)

1H. Permits WH+expletive (*the hell*, *on earth*, etc.) as introducer:

+ Who the hell was there? [MQ]
I don't know who the hell put water in my gas tank. [EQ]
Whoever the hell comes, we've got to finish the job. [CM]
Whoever the hell did it will have to pay. [CR]
- *What the hell they put water in! [ME]
*It amazed me who the hell put water in my gas tank. [EE]
*What the hell he finished was his thesis. [PC]
*What the hell she had in her hand sparkled. [FR]
*Sandy, who the hell just arrived, can tell you. [AR]
*Any person who the hell has the experience can tell you. [RR]
*It was Sandy who the hell we noticed. [CL]

(A quite different pattern, with everything out except interrogatives and concessives.)

1I. Permits negative polarity items, especially unstressed *any*-words:

+ Who saw anything? [MQ]
I wonder whether anyone saw anything. [EQ]
Whoever sees anyone should shout. [CR]
Whoever sees anything, I'm still checking for myself. [CM]
- *What anyone saw! [ME]
*It's astonishing what anyone saw. [EE]
*What anyone saw was a unicorn. [PC]
*What anyone had in their hands sparkled. [FR]
*The diamonds, which anyone had in their hands, sparkled. [AR]
*The people who saw anyone shouted. [RR]
*It was an ivory spoonbill which anyone saw. [CL]

(Like 1H.)

1J. Has grammatically singular subjects *who/what/which*:

+ Who was/*were at the party? [MQ]
I wonder what is/*are exploding. [EQ]
Who has/*have the answer! [ME]
It's astonishing who has/*have the answer. [EE]
Whoever is/*are there, just act cool. [CM]
Whoever was/*were there was acting silly. [CR]
What was/*were in the rubbish was chicken bones. [PC]
What was/*were in the rubbish smelled awful. [FR]
- Those things, which *is/are exploding, frighten me. [AR]
The people who *was/were at the party were boring. [RR]
It was several boys who *was/were harrassing the cat. [CL]

(Like 1A and 1B.)

1K. Shows inversion:

+ What does she do for a living? [MQ]
- *I know what does she do for a living. [EQ]
*What she does for a living! [ME]

(Of the constructions considered here, only MQ permits inversion.)

1L. May be infinitival:

+ What to do? [MQ]
I don't know what to do. [EQ]
- *What to do! [ME]
*It astonished them what to do. [EE]
*Whatever to do, I should get on with it. [CM]
*Whatever to do is everyone's duty. [CR]
*What to notice was an ivory spoonbill. [PC]
*The eagle, which to notice, is just overhead. [AR]
*The person who to see is Robin. [RR]
*It is Robin who to see. [CL]

(Only interrogatives, whether main or embedded, allow this infinitival construction.)

1M. Permits WH+*ever* as introducer:

+ Wherever did he go? [MQ]
Wherever you go, I'll go with you. [CM]
Whatever he saw distressed him. [FR = CR]
- *I don't know wherever he went. [EQ]
*Wherever he went! [ME]
*It's astonishing wherever he went. [EE]
*Robin, whoever is my cousin, likes kumquats. [AR]
*Your friend whoever is my cousin likes kumquats. [RR]
*It was Robin whoever liked kumquats. [CL]
*Whatever Robin ate was the kumquats. [PC]

(Concessives occur with -*ever* by definition. Otherwise only main questions do so.)

1N. Permits *whether* (*...or not*) as introducer:

+ I wonder whether they'll come (or not). [EQ]
Whether they come (or not), we'll be ready for them. [CM]
Whether they come (or not) will decide the matter. [CR]
- *Whether will they come (or not)? [MQ]
*Whether they will come (or not)! [ME]
*It's amazing whether they'll come (or not). [EE]
*The decision, whether we go (or not), must be made. [AR]
*The decision whether we go or not must be made. [RR]
*It was to go whether to go (or not). [CL]
*Whether to go (or not) was to go. [PC]

(*Whether* occurs only in concessives - where it fills the slot of the nonexistent *whetherever* - and in embedded questions.)

1O. Permits *if* (*...or not*) as introducer:

+ I wonder if they'll come (or not). [EQ]
- *If they come (or not), we'll be ready for them. [CM]
*If they come (or not) will decide the matter. [CR]

(Here *if* is like *whether*, but even more restricted.)

2. Tests favoring relatives of one sort or another

2A. Permits *that* as introducer:

+ The stone which/that he had in his hand sparkled. [RR]
It was a stone which/that he had in his hand. [CL]
- The stone, which/*that he had in his hand, sparkled. [AR]
What/*That he had in his hand was a diamond. [PC]
What/*That he had in his hand sparkled. [FR]

(Restrictive relatives group with clefts. Concessives, interrrogatives, and exlamations all require WH, a familiar fact that I do not bother to illustrate here.)

2B. Permits Ø as introducer:

+ The stone he had in his hand sparkled. [RR]
It was a stone he had in his hand. [CL]
- *The stone, he had in his hand, sparkled. [AR]
*He had in his hand was a diamond. [PC]
*A diamond was he had in his hand. [PC, inverted]
*He had in his hand sparkled. [FR, subject]
*I admired he had in his hand. [FR, object]

(As in 2A.)

2C. Permits NP+PP as introducer (pied piping of complex NP):

+ Any book the labels of which are smudged may be returned. [RR]
These books, the labels of which were smudged, were unacceptable. [AR]
It was K-2 the top of which she climbed to. [CL]
The top of whichever mountain she climbed to, I applaud her. [CM]
The top of which mountain did she climb to? [MQ]
The tops of which mountains she climbed to! [ME]
It's astonishing the tops of which mountains she climbed to. [EE]
- *I have visited the top of what she climbed to. [FR]
(cf. I have visited what she climbed to the top of.)
*I have visited the top of whichever hill she climbed to. [CR]
(cf. I have visited whichever hill she climbed to the top of.)
*The top of what she climbed to was K-2. [PC]
(cf. What she climbed to the top of was K-2.)
*I realized the top of what she climbed to. [EQ]
(cf. I realized what she climbed to the top of.)

(A pattern that occurs nowhere else in this list.)

3. Test distinguishing exclamations from interrogatives:

Permits *how very*+A and *what a*+N as introducers:

+ What a nice guy you are! [ME]
How very intricate these facts were came as a surprise to me. [EE]
- *What a nice guy are you? [MQ]
*How very intricate these facts were was irrelevant. [EQ]

(Other tests distinguishing ME or EE from MQ or EQ are given above in 1H, 1I, 1K-O, and 2C.)

4. Tests picking out FR and PC as a set

4A. Rejects personal WH (*who/whom/whose*) as introducer:

+ *I introduced who stood first in line. [FR]
*Who came to the door was John the Baptist. [PC]
- It was an urchin who stood on the doorstep. [CL]
Whose little boy are you? [MQ]
Who was at the door was a mystery to everyone. [EQ]
Who we saw at the beach this afternoon! [ME]
Who came to the door surprised me. [EE]
Whoever sees anyone should shout. [CR]
Whoever sees anything, I'm still checking for myself. [CM]
A person who has good health is fortunate. [RR]
Robin, whom you met yesterday, is a sculptor. [AR]

4B. Has paraphrase with definite pronoun + WH:

+ That which he had in his hand exploded.
= What he had in his hand exploded. [FR]
That which he had in his hand was a grenade.
= What he had in his hand was a grenade. [PC]
- *It was a diamond that which he had in his hand.
cf. It was a diamond which he had in his hand. [CL]
*I didn't realize that which he had in his hand.
cf. I didn't realize what he had in his hand. [EQ]

(The full range of relevant constructions is much wider, including introducers like *the one(s) who*, *the place where*, and *the person/thing that*.)

4C. Rejects Prep+WH as introducer (no pied piping of PP):

+ *From where she comes is beautiful in the spring. [FR]
(cf. Where she comes from is beautiful in the spring.)
*From where she came was Albania. [PC]
(cf. Where she came from was Albania.)
- It was Albania in which she grew up. [CL]
From where did she come? [MQ]
I've just learned from which city she comes. [EQ]
Across what wide beaches we walked! [ME]
It's astonishing across what beaches we walked. [EE]
From whichever city they come, they're all frightening. [CM]
Anyone from whom such news comes is welcome. [RR]
Kim, from whom this news comes, has already gone. [AR]

5. Tests distinguishing PC from CL (beyond the observation that CL is of the form IT BE XP WHC, and PC of the form WHC BE XP):

5A. Permits inversion around BE:

+ Give Arf a bath was what we did. [PC]
- *Kim was it who stole the tarts. [CL]
*Kim who stole the tarts was it. [CL]

(It is not clear whether this inversion should be described as the same construction as the inversion in *Sitting on the fence was a duck* and *Under the rock is a salamander.*)

5B. Has a predicational, as well as a specificational, reading:

+ What he wants his wife to be is fascinating. [PC, ambiguous]
- It's fascinating that he wants his wife to be.
[CL, specificational only]

5C. Permits 'semantic' agreement of BE with XP:

+ Thousands of roses was/were what we saw. [PC, inverted]
What we saw was/were thousands of roses. [PC]
- It was/*were thousands of roses that we saw. [CL]

5D. Permits extensions of connectedness (see Zwicky 1984:325f):

+ What I must do is eat the duck. [PC]
(cf. *I must do eat the duck.)
What took place then was that I ate the duck. [PC]
(cf. *It took place then that I ate the duck.)
What I need is for someone to sing. [PC]
(cf. *I need for someone to sing.)
What they said about Tony was that he lisped. [PC]
(cf. *They said about Tony that he lisped.)
- *It is eat the duck that I must do. [CL]
*It was that I ate the duck that took place. [CL]
*It is for someone to sing that I need. [CL]
*It was that he lisped that they said about Tony. [CL]

(Other tests distinguishing PC from CL have been given in 1A-C, 1E, 1F, 1J, 2A-C, and 4A-C above.)

Notes

*This note began life as a handout for a beginning syntax course in February 1974, under the title 'The Wh Squish'. It acquired its present form in April 1986. My thanks to Robert N. Kantor, who of course bears no responsibility for the formulation you see here; he thinks it's almost all semantics and pragmatics, and maybe he's right.

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Free Word Order in GPSG*

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1. **Free constituent order and free word order.** Recent versions of generalized phrase structure grammar (following Gazdar and Pullum 1981) provide an elegant scheme for describing free, or relatively free, order of constituents within a construct: immediate dominance, or ID, rules, which license the branching of a construct into certain constituents, are distinguished from linear precedence, or LP, rules, which stipulate that certain constituents must occur in a specified order whenever they are sisters.[1] Thus, given the ID rule VP ---> V, NP, PP and no LP rule imposing an order on any two of the three constituents, all six constituent orders are permitted.

The fewer LP rules a language has, the freer its constituent order. Consider, for example, a language with the ID rules in (1) but with no (relevant) LP rules whatsoever.

(1) S ---> NP, VP
NP ---> (A), N
VP ---> V, NP

In this language a subject-verb-object sentence with a structure as in (2)

(2) $[_{S}\ [_{NP}\ A\ N_1\ ]\ [_{VP}\ V\ [_{NP}\ N_2\ ]\ ]\ ]$

has eight variant orders--with A and N1 in either order, V and N2 in either order, and the A-N1 and V-N2 combinations in either order. The eight orders are listed in (3).

(3) A N_1 V N_2 ¦ A N_1 N_2 V ¦ V N_2 A N_1 ¦ V N_2 N_1 A
N_1 A V N_2 ¦ N_1 A N_2 V ¦ N_2 V A N_1 ¦ N_2 V N_1 A

This is *free constituent order*: within any construct, the constituents can occur in all possible orders--but these constituents, taken together, always make a continuous unit. Free constituent order is not the same thing as *free word order*. In a language with free word order, (2) would have not $2^3 = 8$ variants, but $4! = 24$: within any clause, the words can occur in all possible orders.

2. **Liberation metarules.** Pullum (1982) proposed to use the metarule feature of the GPSG framework to describe free word order; a metarule predicts the existence of one set of ID rules (the *consequent* rules) from the existence of another set (the *antecedent* rules). A 'liberation metarule' (lm) à la Pullum can, for instance, scramble NP constituents within the VP:

(4) *IF* VP ---> NP[F], X
THEN VP ---> Det[F], N[F], X

According to (4), if it is permissible for VP to branch into certain constituents, namely an NP and any set X of other constituents, then it is also permissible for VP to branch into a somewhat different set of constituents, comprising Det, N, and the constituents in X. Thus, if /NP, V/, /NP, NP, V/, /NP, PP, V/, /NP, V, VP/, say, can all be constituent-sets of VP, then so can /Det, N, V/, /Det, N, NP, V/, /Det, Det, N, N, V/, /Det, N, PP, V/, and /Det, N, V, VP/.

As it happens, the literature on lms has concerned itself almost entirely with one particular lm, namely the one that liberates the constituents of VP into S as in (5), thereby permitting LP rules that express ordering conditions on the 'Satzglieder', that is, the major phrases of an S.

(5) *IF* VP ---> V, X
THEN S ---> NP, V, X

Versions of this lm are given for Makua by Stucky (1981, 1982, 1983), for Modern Greek by Horrocks (1983, 1984), and for German by Uszkoreit (1983).

3. **Problems with lms**. What's wrong with liberation metarules like (4) and (5)? Five things that I can see.

3.1. **Connection to mediators not expressed**. These lms are not just any old metarules. Rather, in each case the formula for the antecedent and the formula for the consequent stand in a special relationship. In (4), the left-hand sides of the two formulae are identical, and the right-hand sides are nearly so, differing only in that the right-hand side for the antecedent mentions a single category (NP), the *mediating construct*, where the right-hand side for the consequent mentions several (Det, N), the *mediating constituents*. In (5), the right-hand side of the antecedent is a subpart of the right-hand side of the consequent; here the mediating construct is the left-hand side of the consequent (S), while the mediating constituents are the right-hand side of the antecedent (VP) and the extra constituents in the left-hand side of the consequent (NP).

Indeed, the mediating construct (NP in (4), S in (5)) and the mediating constituents (/Det, N/ and /NP, VP/, respectively) are not randomly associated with one another. Rather, they are related via an existing *mediating rule* or *mediator*, NP ---> Det, N in (4), and S ---> NP, VP in (5).

What is important here is that in (4) and (5) the mediating construct and mediating constituents are not connected in any way to the mediating rule. Nothing says that (4) and (5) are much more probable metarules than, say, (4') and (5').

(4') *IF* VP ---> NP[F], X
THEN VP ---> P[F], A[F], X

(5') *IF* VP ---> V, X
THEN> AP ---> PP, N, X

3.2. **Connection among translations not expressed.** Second, as (4) and (5) are stated, the semantic interpretation principle for the consequent has no intrinsic connection to the translations for the antecedent or the mediator, even though it is in fact a composite of these.

That is, in (4), the way in which the translation for VP is built up out of the translations for Det, N, and the X constituents is that the translations for Det and N are combined in the same way that they are in the mediating rule NP ---> Det, N, and this translation is combined with the translations for the X constituents in the same way that the translation for NP is combined with the translations for the X constituents in an antecedent rule VP ---> NP, X. The way in which translations combine must be stipulated in a full statement of (4), at least in versions of GPSG advanced until recently.[2] Similar observations hold for (5).

3.3. **Inheritance of features stipulated rather than predicted.** Third, the inheritance of the features from the mediating construct to the mediating constituents has to be stipulated in (4)--as if this inheritance had no connection to other principles of feature inheritance, in particular the Head Feature Convention and the Control Agreement Principle. But in fact, N in the consequent of (4) should bear the features [F] as a result of the fact that NP in the antecedent bears those features, via the HFC; and Det in the consequent should bear those features as a result of the fact that N bears them, via the CAP.

3.4. **Spurious structural ambiguities predicted.** Fourth, clauses in which coconstituents occur contiguous to one another are assigned a number of constituent structures, ranging from the fully hierarchical (or 'configurational') to the utterly flat (or 'nonconfigurational'). But there is no reason to think that such clauses have any structure other than the perfectly flat. Certainly there is no reason to think that they are structurally ambiguous.

To see the problem, suppose we're looking at a language with both the lms (4) and (5), and consider a SVO sentence with the shape NP V Det N. This sentence is predicted to have four distinct structures (all with the same translation): one completely hierarchical structure, assuming neither (4) nor (5) has applied ([NP [V [Det N]]]); one flat structure, assuming both have applied ([NP V Det N], with neither Det N nor V Det N making a constituent); and two intermediate structures, assuming that only one lm has applied ([NP [V Det N]] and [NP V [Det N]]).

But students of free word order languages (like Hale 1983 discussing Warlpiri) observe that there is no evidence for internal constituent structure in these languages; it is this fact that has led some to suggest that every clause in these nonconfigurational languages has the form W*, each S branching directly into its component words.

3.5. **Restriction to lexical metarules violated.** Fifth, some lms will have antecedents (like VP ---> VP, AdvP or NP ---> NP, PP) that do not introduce lexical categories--hence, according to Flickinger (1983), should not be possible metarules at all. If we adhere to Flickinger's restriction, then it will be impossible to liberate the constituents of a

VP into a larger VP also containing an AdvP, or to liberate the constituents of an NP into a larger NP also containing a PP.

4. **The universal liberation metarule approach**. One response to these criticisms would be to posit a single lm as in (6), made available (though not made obligatory) by universal grammar. Here I follow a suggestion by Horrocks (1984: 119): 'Let us suppose that UG makes available a basic, fully hierarchical, $\bar{X}$-theory, and ... devices for "flattening out" hierarchical structure, namely generalised versions of' his lms.

(6) *IF* A ---> B, X *AND* B ---> Y *THEN* A ---> X, Y,
where A is any category, B any category other than S,
and X and Y any sets of categories.

The restriction that B not be S is designed to prevent the liberation of material from a clause into a superordinate S; the generalization here is the familiar one that languages do not permit the interpolation of material from one clause within another.

An analysis using the universal lm (ulm) in (6) would provide the basis for a response to the first three criticisms. As to the first: The ulm explicitly mentions two antecedent rules, one of which is the mediator, in addition to the consequent. The mediator in (4), NP ---> Det, N, is the second antecedent in the scheme of (6); the mediator in (5), S ---> NP, VP, is (in the form S ---> VP, NP) the first antecedent in the scheme of (6).

As to the second: Though (6) does not specify the translation for the consequent, this can in fact be given by the ulm - note, given universally, not stipulated for each lm - as composed from the translations for the two antecedents in the scheme of (6).

As to the third: Since the mediator is explicit as one of the antecedents in the scheme of (6), features can be assumed to be distributed in all the relevant rules by means of the HFC and CAP.

The fourth and fifth criticisms remain, however. In addition there is now a sixth criticism: This analysis predicts that any language is either perfectly nonconfigurational (if it has (6)) or else basically configurational (if it lacks (6) - though it might have some parochial lms, if any of these are allowed). Such a typological divide, labeled the 'bifurcationist view' by Pullum (1982: 215), seems too sharp, though it has been favored by some, for instance Hale (1982). Hale himself has abandoned strict bifurcationism; in Hale (1983: 44-6), he speculates that there might be three subtypes of nonconfigurational languages.

In any event, surprisingly little seems to be known about degrees of word order freedom in the languages of the world; the now immense literature on word order (much of it summarized in Hawkins (1983, esp. chs. 1 and 2)) is focused on linearization, in particular on potential universal principles of linearization, rather than on freedom. The Australian aboriginal languages Hale has studied appear to represent one typological extreme, while English happens to be at or close to the other extreme, but we have little systematic knowledge of what is possible in between, and it would be inappropriate to enforce bifurcationism on the basis of a very small and skewed sample of languages.

5. **Parametrization of the ulm.** Intermediate degrees of configurationality are possible if (6) is constrained so as to apply only for certain specified category pairs (A, B) in a particular language, i.e. if L is parametrized as in (6') to a set P of mother-daughter pairs of phrasal categories. Again I follow a suggestion made by Horrocks (1984: 119): 'We might also suppose that the grammars of languages make varying degrees of use of these devices [lms], some, perhaps the so-called W* languages (see Hale 1982 and Pullum 1982), making free and extensive use of both, others, say Modern Greek and English, making very limited use of them.'

(6') Given a pair-set P for a language, then for any pair (A, B) in P,
  a. A and B are phrasal categories,
  b. B ≠ S, and
  c. *IF* A ---> B, X *AND* B ---> Y *THEN* A ---> X, Y,
     where X and Y are any sets of categories.

For a perfectly configurational language P would be empty, or as I shall say, has the value *NULL*, while for a perfectly nonconfigurational language P would include every relevant pair, or as I shall say, has the value *ALL*. Other order types are specified with reference to *NULL* or *ALL*. Nearly configurational languages would require a specification of P, and nearly nonconfigurational languages would require a specification of the pairs not in P. Assuming that a language is more complex as more conditions are required to describe its pair-set, this proposal would favor the pure order types, while still permitting intermediate ones to occur.

A very common sort of nearly nonconfigurational language - exemplified by Finnish, Tamil, and Korean, according to my informants - is one in which word order is free, except that the constituents of NP must make a continuous unit (and typically are subject to rigid ordering constraints of their own, describable in LP rules). For such a language, the pair-set P includes all except those in which B = NP.

I do not suppose that there is nothing more to be said about the pair-sets that occur in the grammars of the world's languages, that languages are, so to speak, free to pick any pair-set whatsoever. On the contrary, I expect that there are constraints on, and implicational generalizations within, pair-sets, and that these should be stated as part of universal grammar, though I am not now in a position to make specific proposals about the matter. As I pointed out above, much remains to be discovered about the extent of intermediate degrees of configurationality in language.

6. **Phantom rules.** The fourth and fifth criticisms have still not been addressed. To avoid predicting spurious structural ambiguities, we can arrange things so that only one structure is assigned, by generalizing the idea of 'phantom category' already proposed in GPSG (Gazdar and Sag 1981).

A phantom category is one that appears as the construct in at least one ID rule but not as a constituent in any ID rule. As a result, it will not appear as a node label in constituent structures, but rules with the phantom category as their construct will nevertheless be available as antecedents for metarule application.

The extension of this idea that I have in mind is the following: Not all ID rules will actually license branchings; instead, some will act as 'phantom rules', serving only to provide antecedents for applications of (6'). In particular, I propose that the effect of (6') be reined in by (7), which is a revision of one of the conditions defining well-formed constituent structures:

(7) A rule A ---> B, X
licenses the branching of A into B and X
only if (A, B) is not in the pair-set P.

To see how (7) works, consider a language with the ID rules in (8a-e) and with a pair-set P containing all relevant pairs in which B ≠ NP.

(8) a. S ---> NP, VP
b. NP ---> Det, N
c. VP ---> V, NP, (AdvP)
d. VP ---> V, VP
e. AdvP ---> Deg, Adv

In this language the following pairs (among others) are in P: (S, VP), (VP, V), (VP, AdvP), (VP, VP). According to (7), then, the ID rules (8a), (8c), and (8d) fail to license branchings and so are phantom rules. From (8a) and (8d), by (6') it follows that

(8) f. S ---> NP, V, VP

is an ID rule, but according to (7) it is a phantom rule, since (S, VP) is in P. From (8f) and (8c), by (6') it follows that

(8) g. S ---> NP, V, V, NP

is an ID rule, *and* an actual one, since neither (S, NP) nor (S, V) is in P (the first is out because its second member is NP, the second because its second member is a lexical category, V). The set of actual rules also includes (8h-j):

(8) h. S ---> NP, V, NP
i. S ---> NP, V, NP, Deg, Adv
j. S ---> NP, V, V, NP, Deg, Adv

On this analysis the structure assigned to a construct is the flattest one available. In my example, those are the structures provided by (8g-j).

Adopting (7) changes the character of (6') entirely. Its effect is now to specify the syntax of a language, its set of actual rules, as a subset of a larger set of rules, rather than to express implicational generalizations about the set of actual rules (and so in effect extending the set of actual rules). That is, (6') is not a metarule at all, but a (universal) principle of a quite different type. The fifth criticism of (6) is thus averted, and our proposal no longer depends on the metarule feature of GPSG at all - a welcome consequence in light of recent moves (on independent grounds) to abandon this feature in favor of other theoretical constructs, as in Pollard (1984).

A final note. In a framework combining (6') and (7), many of the properties that have been claimed to characterize nonconfigurational languages do not follow from the fact that for these languages P = *ALL*. Consider the list in Hale (1982: 86-7) - (a) free word order, (b) discontinuous constituency, (c) pronoun drop, (d) lack of NP-movement transformations, (e) lack of dummy NPs, (f) rich case system, (g) complex verb words - to which I would add (h) the occurrence of fixed-position (usually second-position) clitics. Properties (a), (b), and (d) all follow from my ulm treatment, but the others do not. Properties (c) and (e) are two sides of the same coin, but the fact remains that nothing I have said would connect free word order with pronoun drop, rich case systems, complex verb words, or fixed-position clitics.

This does not seem to me to be an unwelcome state of affairs. Though there might well be some universal associations within this set of properties, I doubt that any of them entails or is entailed by free word order, so that it would be no virtue for a theoretical framework to necessitate one or more of these entailments. There are the familiar functional reasons motivating a tendency towards a trade-off between rigid order and such properties as case marking, complex verb words, and fixed-position clitics, and in my view these reasons need not be framed as principles of universal grammar. Consider Lisu, which has extraordinarily free constituent order; according to Hope (1973: 85-6), the sentence 'This morning beside your house I gave Asa a slap on his ear' has 720 grammatical, and synonymous, translations into Lisu - one for each of the orders of the six NPs involved. Thus, Lisu is a nearly nonconfigurational language of the same type as Finnish, Tamil, and Korean. But unlike the latter three languages, with their rich case systems and extensive agreement morphology on verbs, Lisu lacks nominal inflection (though topic NPs are marked by an enclitic) and has no verbal morphology beyond the marking of mood. As Hope points out, widespread ambiguity results with respect to the grammatical relations NPs bear to the verb of their clause; speakers manage disambiguation nonsyntactically - by reference to (linguistic or nonlinguistic) context and real-world knowledge.

Notes

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[1] As Pullum (1982) observes, adopting this version of the ID/LP format restricts the set of languages with GPSG syntaxes to a proper subset of the context-free languages; the restriction follows from the stipulation that an LP rule X < Y requires that X precede Y whenever they are sisters

--regardless of what mother category dominates them and regardless of what ID rule licenses this configuration. If LP rules are permitted to refer to the mother category, then no restriction of the set of CF languages results (though generalizations could still be stated across separate ID rules licensing similar configurations, for instance separate rules licensing the branching of VP into V and VP).

[2] In Klein and Sag (1985) and Gazdar et al. (1985), in contrast, all translation schemes are derivable from the forms of rules.

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Immediate Precedence in GPSG*

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1. **Precedence and immediate precedence**. The ID/LP (immediate dominance/linear precedence) format of generalized phrase structure grammar (GPSG) separates the principles expressing conditions on branching from those expressing conditions on the relative order of sister constituents. An LP principle is of the form X < Y, where X and Y are (possibly complex) category names; such a principle requires that category X precede category Y whenever the two are sisters.[1]

Precedence in this sense need not be immediate. Thus the LP condition in (1), while excluding the orderings of sister constituents V, NP, and PP in (2), permits all of the orderings in (3)--including V PP NP, in which V and NP are not immediately adjacent to one another.

(1) V < NP

(2) *NP V PP, *NP PP V, *PP NP V

(3) V NP PP, V PP NP, PP V NP

However, in a language with considerable hierarchical (rather than flat) constituent structure, mere precedence (symbolized by the simple sign '<') and immediate precedence (which we will symbolize by the double symbol '<<') will often amount to the same thing. Thus the LP principle (4) holds in English, where it has the effect of requiring (5), given that Det and Nom have no further sisters under NP. In this particular case in English, a simple precedence condition would suffice.

(4) Det < Nom

(5) Det << Nom

2. **Positioning adverbs in Finnish**. Now consider a language with flatter constituent structures and freer word order than English. Consider, for example, Finnish, where word order within a clause is free (except that NPs have continuous, strictly ordered parts) and also where the words (again, except those in NPs) are immediately dominated by S. Finnish permits all six orderings of the constituents in a sentence composed of a subject, a direct object, and a finite V, as in (6):

(6) a. Juha lyö Heikkiä. 'Juha hits Heikki'
b. Juha Heikkiä lyö.
c. Lyö Juha Heikkiä.
d. Lyö Heikkiä Juha.

e. Heikkiä lyö Juha.
f. Heikkiä Juha lyö.

Despite this general freedom of word order, Finnish has a number of adverbs whose location is quite rigidly determined with respect to other words; one such item is the sentential adverb *myös* 'also, too'.[2]

We must observe first that *myös* belongs to two distinct adverbial classes, that is, that it has two distinct uses: first, in what we will call its 'local' use it is attached to (and normally precedes) the constituent it modifies, as in (7).

(7) a. Eilen Juha antoi kirjan *myös* Marjalle.
'Yesterday Juha gave a book also to MARJA'

b. Eilen Juha antoi Marjalle *myös* kirjan.
'Yesterday Juha gave Marja also a BOOK'

c. Eilen Juha *myös* antoi Marjalle kirjan.
'Yesterday Juha also GAVE Marja a book'

In its 'sentential' use, which is the one of interest to us here, *myös* has scope over the whole sentence, and it must immediately follow the finite V--wherever this V happens to be located in its S. We illustrate this constraint in (8); (8a) has V in second position, (8b) in initial position.

(8) a. Juha antoi *myös* kirjan Marjalle.
'Also, Juha gave a book to Marja'

b. Antoi *myös* Juha kirjan Marjalle.

The sentences in (8a) and (8b) are not, of course, pragmatically equivalent; but they are both grammatical, they are semantically equivalent, and their semantics differs from the semantics of the sentences in (7).

The traditional approach to finite verb + *myös* units assumes that the two form a subconstituent in the sentence; we will label this subconstituent V'. Immediate precedence would fall out from immediate dominance under this treatment, just as it does for English in Det and Nom as above, and ordinary precedence would suffice. Now we know of no evidence that actually favors this approach, and there are considerations that speak against it, having to do with the generally flat constituent structure of Finnish Ss.

First, other sentential adverbs, VP adverbs, and verbal adverbs are clearly, like V and its NP arguments, daughters of constituents larger than V'; in Nevis (1985) it is argued that rules generate some of these as daughters of VP which then appear as daughters of S by virtue of a 'flattening' metarule. Not only would *myös* have to belong to a special subclass generated as a daughter of V' rather than VP or S, but it would also have to be exempted from the general flattening effect.

Second, there are sentential adverbs having multiple positioning within the sentence, including the slot immediately after the finite V. One such adverb is sentential *vain* 'only, just', which occurs in sentence-second position as well as immediately after V. If an ID rule generates *myös* as a daughter of V', then the same rule generates *vain* in this configuration--in which case *vain* requires not only two separate LP rules (as will any adequate analysis), but also two separate ID rules.

We conclude that ID rules generate *myös* as a sister of the finite V. The analytic problem we are then addressing is how to state an ordering constraint on the daughters of S.

3. **Eliminating << in favor of <.** Suppose the class of adverbs like *myös* in its sentential use is labeled [Class:29]. Can the obvious and elegant principle (9) be eliminated in favor of principles using only mere precedence, < ?

(9) $[+V, -N, \text{Bar}{:}0, +\text{Finite}] \ll [\text{Adv}, \text{Class}{:}29]$

Yes, but the cost is greater than the prize. In general, the precise effect of the principle (10) can be achieved by the conjunction of the two principles (11a) and (11b).

(10) $X \ll Y$

(11) a. $X < Y$
b. $(\nexists Z)(\ X < Z\ \ \&\ \ Z < Y\ )$

Principle (11a) is of course innocuous, but (11b), with its quantification over categories, is quite suspect; countenancing such conditions extends the range of expressible generalizations about linear precedence into new territory, so that conditions like the one in (11'), which allows phrasal but not lexical categories to intervene between X and Y, would be permitted. And in any case there is no intrinsic connection expressed between the content of (11a) and (11b); we would have no reason to expect that (11b) is vastly more likely to cooccur with (11a) than the condition in (11") is.

(11') $(\nexists Z)(\ X < [Z, \text{Bar}{:}0]\ \ \&\ \ [Z, \text{Bar}{:}0] < Y)$

(11") $(\nexists Z)(\ X < Z\ \ \&\ \ Y < Z\ )$

(The condition (11") by itself requires that when X and Y are sisters, one of them must be the last constituent in its construct. In conjunction with (11a) it requires that when X and Y are sisters, Y must be the last constituent in its construct--though no such condition would hold when Y combined with sisters other than X.)

It might seem that a simpler solution would be to replace (10) with the conjunction of two principles (11a) and (11c), where '~X' stands for the complement of the features mentioned in X.

(11) a. $X < Y$
c. $Y < {\sim}X$

Again, no intrinsic connection is expressed between the content of (11a) and (11c), and there are technical infelicities associated with specifying the complement of complex feature descriptions; the immediate-precedence statement in (9), for instance, would have to be replaced by a whole set of LP conditions referring to <, as in (12).

(12) [Adv, Class:29] < [-V]
[Adv, Class:29] < [+N]
[Adv, Class:29] < [+V, -N, Bar:n] (for n>0)
[Adv, Class:29] < [+V, -N, Bar:0, -Finite]

But there is a much stronger criticism of (11a) & (11c): together, they require that whenever X and Y are sisters, X must be the first constituent in its construct--and this requirement is usually too strong. Finnish *myös* must immediately follow V, but V does not have to be clause-initial, as we have already illustrated in example (8a).

Consider even the very configurational language English, and the condition in (13) (the requirement that nothing can intervene between a verb and its direct object, modulo Heavy NP Shift), as illustrated in (14). This condition cannot be handled by the combination of conditions in (15), because (15) would put V first in VP whenever there was an object NP.

(13) V << NP

(14) *set very quickly the pot on the stove, *gave yesterday a marvelous lecture, *ate in the kitchen cheese

(15) a. V < NP
b. NP < XP (where X = V, P, A, Adv)

But AdvP can come first in VP as well as later in this constituent, as we illustrate in (16a, b).

(16) a. very quickly set the pot on the stove
b. set the pot on the stove very quickly

We conclude that the LP principles of GPSG should be able to refer directly to << as well as to <.

4. **Some observations.** We have two final notes, a long one and a short one. The long one is a remark that immediate precedence is quite commonly called for in the analysis of languages with free constituent order or free word order, in particular in the description of items that must appear in second position or in penultimate position. In the framework we have been sketching, 'second position' translates as 'immediately following an X in first position', and 'penultimate position' as 'immediately preceding an X in last position'. This is not the place to explore how first and last position are to be described; let us simply suppose that there are features First and Last that are associated with the first and last constituents, respectively, in a set of sister

constituents.[3] Then the requirement that some item Y appear in second position is described by an LP condition like the one in (17).

(17) [+First] << Y

Finnish has items restricted in just this way. In particular, the adverbs *muka* 'supposedly' and *toki* 'truly' in their sentential uses must occur immediately after the first daughter constituent in an S, as we illustrate in (18) and (19) with *muka*. The sentences in (19) cannot be understood as paraphrases of those in (18).

(18) a. (Tässä) vuoressa muka asuu peikko.
this mountain ADV live troll
'In (this) mountain supposedly lives a troll'

b. Peikko muka asuu (tässä) vuoressa.

(19) ≠ (18)

a. *(Tässä) muka vuoressa asuu peikko.
b. *Muka (tässä) vuoressa asuu peikko.
c. *(Tässä) vuoressa asuu muka peikko.
d. *(Tässä) vuoressa asuu peikko muka.

The ID conditions of Finnish will insure that the class of adverbs to which *muka* in its sentential use belongs--call it [Class:17]--is introduced only as a daughter of S, along with the main verb and its various NP arguments. The LP condition in (20), which requires immediate precedence, then permits such adverbs to occur only in the second slot among the daughters of S.

(20) [+First] << [Adv, Class:17]

Our short final remark concerns the generative capacity of syntaxes incorporating immediate precedence conditions as well as simple precedence conditions. It is easy to see that each such syntax describes a context-free language (immediate precedence conditions merely eliminate a finite number of ordering possibilities from a finite set), so that no increase in weak generative capacity results from permitting immediate precedence conditions. The gain is entirely in our ability to state generalizations.

Notes

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[1] The ID/LP format was set out in Gazdar and Pullum (1981). See Gazdar et al. (1985) for formal development of the proposal.

[2] Our discussion of the relevant facts about Finnish adverbs draws directly on Nevis (1985).

[3] These 'position features' are subject to the following conditions: (a) if a daughter category is specified for a position feature *F*, then its mother category must be specified for *F* as well; and (b) if a mother category is specified for a position feature *F*, then exactly one of its daughters must be specified for *F*. The position features are then a special type of foot feature, subject to the uniqueness requirement in (b) as well as to (universal) LP conditions requiring a [+First] category to precede all its sisters and a [+Last] category to follow all its sisters.

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Incorporating the Insights of Autolexical Syntax*

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1. **The scheme of Sadock** (1985) is designed to provide a uniform mode of description for a number of phenomena, including at least those of the following sorts, all involving some apparent 'mismatch' between syntax and morphology. (The labels are merely descriptive; no theoretical claims are being made by this taxonomy.)

1.1. Noun incorporation, as in West Greenlandic and Southern Tiwa (described in some detail by Sadock).

1.2. Compounding, including compounds with the same shape as syntactic combinations (like *American history*).

1.3. Derivation, including derivative affixes attached to multi-word (that is to say, compound) units (like *-ian* attached to *formal grammar* in *formal grammarian*).

1.4. Bound word clitics, whether obligatorily bound (as are the Finnish 'particle clitics' described by Nevis 1985) or optionally bound (as are the English nonmodal auxiliaries *is*, *has*, etc.); bound word clitics typically exhibit both promiscuity of attachment and also attachment to i-forms (inflectional forms) of words rather than to bases.

1.5. Phrasal affix clitics which are attached to a margin of a phrase (like the English possessive *'s*) and so exhibit both promiscuity of attachment and attachment to i-forms.

1.6. Phrasal affix clitics which are attached to the head of a phrase (like the Finnish 'possessive particles' described by Nevis, or like the pronominal clitics of most Romance languages); these exhibit attachment to i-forms, but not promiscuity (since they are attached to the head - N in NP for the Finnish example, V in VP for the Romance examples).

1.7. Inflection, in which items that are syntactically unitary are morphologically complex.

2. **Points of agreement**. The core of Sadock's proposal is that all such phenomena are to be described by three sets of conditions: what I will call set S, of conditions on tree structures; what I will call set M, also of conditions on tree structures; and what I will call set L, of conditions on the pairing of S structures (the structures admitted by set S) with M structures (the structures admitted by set M).

At this level of generality, the picture is a familiar one. I have painted it myself on occasion (for instance, Zwicky 1983). In my most recent exposition of an overall theory of grammar (Zwicky 1986), which I will take as my frame of reference for the following remarks, S is labeled

SYNTAX, M is labeled SHAPE (MORPHOSYNTACTIC SHAPE would be a more informative, though also more mouth-bending, name), and L is labeled LIAISON. In Sadock's presentation, S is labeled SYNTAX, M is labeled MORPHOLOGY, and L has no fixed name, though ASSOCIATION (on analogy with Goldsmith's 1976 treatment of autosegmental phonology), LINKING, or MATCHING would all be suitable.

Sadock and I concur on more than this. We agree that S comprises a set of conditions on S structures, and that S structures are to be identified with syntactic representations; we thus reject 'derivation-think' (as Geoff Pullum is fond of calling it) in syntax. We also agree that M comprises a set of conditions on M structures; we reject derivation-think with respect to M as well as S. Indeed, in Zwicky (1986) I propose abandoning derivation-think for all components of grammar except the specifically phonological components, and by making plausible a nonderivational view of L (a component that I had earlier conceived of, without reflection, as derivational in character) as well as S and M, Sadock encourages this reconceptualization.

Finally, both Sadock and I view M structures as primarily morphosyntactic, rather than primarily phonological, organization of linguistic material. That is, we follow writers like Fudge (1969, appositely cited in this connection by van der Hulst and Smith 1982:30) in assuming two distinct sorts of organization, one involving morphemes, stems, words, phrases, and so on, the other involving syllables, feet, phonological words, phonological phrases, and so on. And despite occasional loose talk, for instance about clitics forming 'phonological words' with their hosts, we take M to be an account of the former sort of hierarchical organization. (This is not to deny that M structures are systematically related to hierarchical organization of the latter sort - only to deny that they *are* hierarchical organization of the latter sort).

3. **A disagreement I believe to be irrelevant.** Throughout his article on Autolexical Syntax, Sadock is critical of highly modular theoretical frameworks. Falling under his opprobrium are the approaches of Anderson (1982) and Kiparsky (1982), as well as my own. He objects in particular to 'a fragmentation of the morphology into small components scattered throughout the grammar' (383) in these approaches and is pleased that his own scheme avoids 'the postulation of either separate levels of morphology or separate small-scale modules of grammars' (398).

Now there are points of real difference here - see the next section - but the number of components (be it 1, 2, or 17) and their 'scale' (however one measures this) do not seem to me to be relevant variables. Against the metatheoretical virtue of simplicity (which is promoted, ceteris paribus, by keeping the component types to a minimum, in the fashion of Postal 1972) can be set the metatheoretical virtue of restrictiveness (which is promoted, ceteris paribus, by positing a large number of components, each subject to its own general conditions, in the fashion of my own theorizing), and I cannot see any way of deciding the matter ahead of time, at least so long as the component divisions are (putatively) given by universal grammar.

4. **Points of difference**. At least three genuine issues arise when we try to square Autolexical Syntax with the sort of interfacing scheme I have advocated. I am inclined to see these as matters of detail - important detail, granted - within the same set of fundamental assumptions; but perhaps not everyone would agree. Let me try to bring the points of difference out in relief. (Here I disregard disputes over whether L should be invoked in the analysis of particular sets of data, for instance in the analysis of Upper Sorbian possessive adjective agreement (417-9).)

4.1. **The universality of L**. Sadock assumes that the entire content of L is universal, his list of principles (V) through (VIII) constituting a first approximation to the whole business. This view is a welcome corrective to earlier, highly parochial, views of L; any language-particular conditions on cliticization, in particular, are located by Sadock not in L but in M, which is in any event a repository of parochial conditions. Presumably it is the claimed universality of L that causes Sadock to speak of his framework as lacking a component of cliticization (385), an assertion that makes his organization of grammar seem more unlike mine than it actually is. However, a fully universal L would constitute a substantial improvement to my theoretical framework, so that I believe the hypothesis should be energetically explored.

(A few words on the conditions that Sadock formulates. Principle (VI) - assume one-to-one association between S structures and M structures wherever possible (409) - expresses the default assumption about the relationship between the two sorts of structures. Principle (V), 'Constraints on morpheme order are inviolable' (408), describes a systematic exception to (VI). The two remaining conditions distinguish (bound word) cliticization from noun incorporation and place limits on how divergent from one another the S and M structures can be.)

4.2. **Morphological or morphosyntactic M**. The burden of description lies of course on M, which Sadock labels 'morphology', despite the fact that many of the units of M structures are quite unlike the 'words' of traditional linguistic analysis - things like *stopped's'll*, composed of the inflected verb *stopped*, the phrasal affix possessive clitic *'s*, and the bound word auxiliary clitic *'ll*. (A contextualization: *I don't know which of those rugs those guys are making I'd really prefer, but I guess the man who just stopped's'll suit me just fine.*). Certainly these units are word-like from the point of view of phonology, but we are not claiming that M structures are phonological. I would prefer to say no more than that they are morphosyntactic, but Sadock appears to want to claim that they are more specifically morphological.

If this difference is not merely terminological, what is at issue is the contents of the lexicon, in particular whether lexical entries include not only information about the phonological, semantic, syntactic, and morphological properties of individual (basic or derived) words, plus information about the association of i-forms of these words with sets of morphosyntactic features - this is the already rather rich view of the lexicon I now take, and have sketched very briefly in Zwicky (1986) - but also information about the properties of i-forms in combination with clitics of various sorts.

I am then embracing Sadock's position with respect to noun incorporation, compounding, derivation, and inflection, but not with respect to (one or more of) the types of cliticization listed in section 1. In my framework, clitic groups are not (in general) listed in the lexicon, any more than syntactic phrases (in general) are. Several predictions follow from these assumptions. First, we do not expect idiosyncratic GAPS in the list of clitic groups, though these do occur in the list of derived words and in the list of i-forms for particular words. Second, we expect idiosyncratic PHONOLOGICAL FORMS in the list of clitic groups to be rare, though full or partial suppletion is common in the lists of i-forms. Third, we do not expect idiosyncratic SEMANTICS for clitic groups above the level observed for syntactic combinations (that is, idiomaticity in clitic groups should be about the same as in syntax generally), though idiosyncratic semantics is common in the list of derived words. The third prediction is hard to assess, but the other two are relatively straightforward.

What I am predicting is that we expect to find no missing clitic groups except insofar as would follow from conditions on host words or on clitics individually (certainly there are plenty of such conditions) or from generalizations of the 'surface structure constraint' sort (the latter are simply conditions in M). Idiosyncratic gaps in the list of clitic groups would be describable in my framework, and in Sadock's whether or not clitic groups are listed in the lexicon, but in my framework only by direct stipulation, that is, by a condition in M saying that the combination of a particular host i-form W and a particular clitic C, or of two particular clitics C_1 and C_2, is ungrammatical. In Sadock's framework, such gaps should be about as common as gaps in morphology of the ordinary sort.

There is a similar difference with respect to phonology. Portmanteau forms do occur, and are presumably to be described by stipulations in M (an analytic option that is available in both Sadock's framework and mine), but in Sadock's framework they should be about as common as (partial) suppletion in morphology of the ordinary sort.

These differences between my framework and (my interpretation of) Sadock's then turn out to be fairly subtle ones, given that (for both of us) the component M can have quite a variety of parochial conditions in it.

4.3. **Articulated or unitary M.** And there lies a final difference between us. I assume a highly articulated M, with five subcomponents (labeled IMPLICATION, FORMATION, REALIZATION, LEXICON, and SHAPE CONDITIONS in Zwicky 1986), while Sadock assumes a unitary M, with no 'minicomponents' or 'tiny modules' (383). What corresponds in Sadock's framework to my (rather complex, but putatively universal) scheme of subcomponent interactions, in combination with the (parochial) assignment of individual conditions to particular subcomponents, is the (entirely parochial) assignment of morphosyntactic units to different bar levels, accompanied by the assignment of dependent morphemes to different classes of 'affixes' (the relevant universal assumption for Sadock being a version of the Head Feature Convention applying in M). Either framework can be used to predict that the unmarked situation is for dependent morphemes to be layered out from a base in the following order: derivational affixes, inflectional affixes, phrasal affix clitics, bound word clitics.

Now Sadock is quite explicit in saying that his 1985 article advocates 'neither a theory of syntax nor a theory of morphology' (387), that is in my terms here, neither a theory of S nor a theory of M (but only a theory of L), so that it is perhaps unfair to dwell on his assertions about M. Certainly his hypotheses about L entail no position on the internal organization of M; our frameworks are in fact compatible with one another on this point, despite his distaste for subcomponents. Perhaps if he considers the phonological and semantic details associated with the sorts of morphosyntactic combinations listed in 1.1 through 1.7, his tastes will change.

Note

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Government in Unexpected Places*

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Any adequate account of English syntax must distinguish (at least) two different situations in which a verb can appear without a direct object, as illustrated in (1a) and (1b).

(1) a. Kim vanished.
b. Kim noticed.
c. Kim noticed it.

In (1a) I will say that the object is *missing*, *lacking*, or *absent*, while in (1b) I will say that an object is present, but is *empty* or *null*. Examples like (1a) involve 'absolute intransitive' verbs, verbs that are subcategorized to occur without objects. Examples like (1b) involve verbs that are subcategorized to occur with objects, but that permit objects with the feature [+NULL]. Definite NPs with this feature are interpreted as discourse-anaphoric, so that (1b) is fully acceptable only in a context in which the referent of the object of *noticed* has been identified, in which case (1b) paraphrases (1c).[1]

Now consider the example in (2a), involving an 'absolute transitive' verb (*construct*, *build*, *make*, etc.). Like *notice* in (1b), such verbs are subcategorized to occur with objects. Unlike *notice*, however, they cannot have [+NULL] objects, even when a discourse context is supplied, as in (2b).

(2) a. *Kim constructed.
b. The pieces of the bicycle lay on the porch. Finally Kim constructed *(it).

What are we to say about these (very familiar) facts? Apparently certain verbs require not only that they have objects (as *notice* does), but also that their objects be [-NULL]. That is, these verbs (*construct* among them) impose the feature [-NULL] on their objects.

The part of syntax devoted to the imposition of features by one sister consituent on another is the theory of (morphosyntactic) *government*. Though morphological case features are the governed features that have gotten the most attention in the literature, a wide range of morphosyntactic features can be governed; Zwicky (1986) alludes to the government of English verb forms by auxiliaries, to the government of nominal number by numerals within Russian NPs, and to the government of adjectival declension class by determiners in German. I am suggesting that verbs can also govern nonemptiness on their objects.

The paradigm in (2) holds not only for absolute transitives but also for causative transitives like *boil* and *roll*. (3a) can be understood only intransitively, even when a discourse referent is supplied for the object, as in (3b).

(3) a. Kim boiled.
b. There was a chicken in the pot. Kim boiled *(it).

I now observe that the separation of subcategorization facts about verbs like *construct* and *boil* from government facts about them is supported by observations about the registers of English.

In various 'instructional' registers in English, in particular recipes and instructions for assembly, the government condition for certain verbs can be lifted, while subcategorization requirements remain untouched. Examples like those in (4) are possible only when this (very special) discourse context has picked out the referent of the object.

(4) a. The T-16 bicycle has 243 component parts. Begin to construct (it) by screwing part 15 into hole A of part 157.
b. Take a chicken and clean (it). Put (it) in a pot and boil (it) for two hours.

Such examples have [+NULL] objects, not missing objects.

Finally consider the facts that make English *not* a 'pro-drop' language, namely the familiar requirement that English finite clauses must have a subject, as illustrated in (5). In the framework I've suggested, what's going on here is government of a [-NULL] subject by finite Vs (or perhaps VPs) in English.

(5) a. *Just can't keep myself satisfied.
b. *Seems we are going to have a tornado.

Once again, a government condition can be lifted in particular registers and styles, in this instance in the epistolary register and generally in conversational style. As many have observed, the sentences in (5) are entirely acceptable in these contexts.

Notes

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[1] See Fillmore (1986) for discussion of various types of [+NULL] objects and the conditions on their occurrence, as well as for bibliographic references.

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Agreement Features: Layers or Tags?*

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Among the many issues in morphological theory considered by Anderson (1986) is the question of how best to represent multiple agreement features on a single constituent - how, for instance, to represent the fact that a single V might exhibit morphological marks conveying information about both its subject (SU) and its direct object (DO) and so must bear distinguishable features for the relevant categories of its SU and DO. The position taken by Anderson, here and in other papers over the past decade, is that representations should distinguish such features via a scheme of *layering*, according to the following principle (cited here as given in Anderson 1986): 'When a rule assigns features from a paradigmatic dimension D to a morphosyntactic representation R that already contains values from D, the result is that the previous values are made hierarchically subordinate to the new values.'

Let F_{SU} and F_{DO} stand for the agreement features on V for SU and DO, respectively, and G for other, non-agreement, features associated with V. Then on the layering proposal, assuming that 'a rule of *object agreement* applies first and is followed by a rule of *subject agreement*' (Anderson 1986), intransitive and transitive verbs have the representations in (1).

(1) a. intransitive: $[G, F_{SU}]$
b. transitive: $[G, F_{SU}, [F_{DO}]]$

In representations like these, which features agree with the SU and which with the DO is not represented directly. Instead, SU features can be picked out as those on the top layer, DO features as those on the layer below the top. In contrast, a number of linguists--among them me, in Zwicky (1986)--have proposed systems of representation in which grammatical relations are *tagged* directly. On this view, intransitive and transitive verbs have representations along the lines of those in (2). (This is not my actual proposal, but the details are not important here.)

(2) a. intransitive: $[G, F_{SU}]$
b. transitive: $[G, \text{SU}{:}F_{SU}, \text{DO}{:}F_{DO}]$

At first glance, neither approach would appear to have a clear advantage; the innovation of feature layering is balanced by the innovation of tags referring to grammatical relations. The layering proposal must stipulate that the DO features are assigned to V before the SU features are, but this might reasonably be taken to be a consequence of the fact that DO is an 'internal argument' of V and is more closely bound to it syntactically than its 'external argument', SU. (Though I must point out that this rule ordering will not follow automatically in approaches to agreement that rely entirely on conditions requiring feature identity between certain sister-sister and mother-daughter pairs of nodes, as in GPSG.)

Anderson (1986) observes that the layering approach seems to have a notable advantage in the way it treats agreement with ABs (absolutives), a phenomenon which is not unusual in languages with complex morphological systems and which can co-occur with SU and/or DO agreement (as in the Kubachi Dargwa data Anderson cites).

An argument that is a nuclear term (SU or DO) is ER (ergative) if it is SU of a transitive verb, AB otherwise. Anderson notes that in (1) the features agreeing with AB are simply those on the *lowest* layer: F_{SU} in (1a), F_{DO} in (1b). SU of transitive and DO of intransitive thus can be viewed, according to Anderson, as forming a natural class in the layered representations. In contrast, given the tagged representations, which features count as AB must be stipulated.

Now the universe of discourse here is very small--it comprises only three individuals, SU of intransitives, SU of transitives, and DO of transitives--so that there is no way to tell whether the fact that SU of intransitives and DO of transitives are treated similarly in some way is an elegant prediction of the framework or merely an accident. We need to expand the universe of discourse.

In this light, consider the fact that agreement with ERs is also not unusual. Yet the agreement features for an ER are not picked out by any simple property of the representations in (1). At best, they are the agreement features in the top layer of a representation with at least two layers, a characterization that is just as stipulative as characterizations based on tagged features.

Next, a peculiar consequence of the layered treatment of ER agreement is that a language with ER agreement would have to have an object agreement rule, whether or not there was any morphological manifestation of DO features on V. To see this, note that the ER features are distinguished from the features agreeing with an intransitive SU only by the appearance of an extra layer of features in the former configuration.

Third, consider the possibility that a language has both agreement of transitives with DOs (or with ERs, given the observation of the previous paragraph) and also agreement of intransitives with features of oblique arguments (instrumentals or benefactives, for instance). Then there would be two distinct ways in which two-layer representations could result--one for transitives, with SU and DO features represented, and one for intransitives, with SU and oblique complement features represented--and the layered representation cannot distinguish the two situations except by reference to transitivity.

Finally, consider *ditransitive* verbs in a language that has both AB agreement and agreement with IOs. IO is not a nuclear term, and so far as I know it never plays a role in AB agreement. Then in order to preserve Anderson's generalization that AB features are represented on the lowest layer, ditransitive verbs would have to have the feature complexes in (3).

(3) ditransitive: $[G, F_{SU}, [F_{IO}, [F_{DO}]]]$

That is, it must be stipulated that DO agreement universally precedes all other agreement rules.

So far as I can see, the order of agreement marking Anderson requires here--DO, IO, SU--doesn't follow from any general principle. It is not the Keenan-Comrie (1977) hierarchy of NP accessibility (this is SU, DO, IO), nor is it the hierarchy of agreement controllers (which is also SU, DO, IO, since if DO controls agreement, so does SU, and if IO controls agreement, so does DO). It is not the order of argument combination assumed by categorial grammarians (see Dowty 1982), which is the reverse of the Keenan-Comrie hierarchy--IO, DO, SU. And it cannot be claimed that DOs are universally more closely bound syntactically to their Vs than IOs are; this is not true for English constructions like *give the people a surprise*, for example.

The upshot is that Anderson's treatment of AB agreement, with its requirement that DO agreement marking come first and SU agreement marking last, is just as stipulative as the tagging approach, with its specification of AB and ER in terms of other primitive concepts.

I conclude that layering has no advantage over tagging, in fact that it has a number of problematic consequences. One might have expected this at the outset, since there is no reason to think that 'lowest X' or 'highest X' (or for that matter 'odd-numbered X' or 'prime X'), defined with respect to some scheme of representation, will play a significant role in the substantive theory the scheme was devised for. To think otherwise is to expect the representations to have a life of their own, and that is mere symbol magic.

Consequently, I do not place any significance on the fact that the layering treatment of AB agreement can be mirrored within the tagging framework, mirrored in fact by incorporation of part of the Keenan-Comrie hierarchy. Suppose we assign the index 1 to SU and 2 to DO, thus reflecting the position of these grammatical relations on the hierarchy (and also following the practive of relational grammarians). Then the AB features of a V are those tagged by the numerically highest index within the V (1 for an intransitive, 2 for a transitive). This proposal preserves Anderson's 'generalization' about ABs, but it also reproduces all the problems with the layering treatment of AB agreement detailed above.

Note

*This is the version of 5 May 1986.

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Suppressing the Zs*

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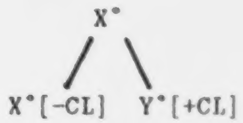
1. **Theoretical matters.** In the scheme of Nevis (1985), the pretheoretical notion of 'clitic' is replaced by two quite distinct notions, described by different mechanisms within a grammar incorporating a GPSG-style syntax: bound words and phrasal affixes.

1.1. **Bound words.** Bound words (or, more exactly, bound i-forms, since the 'words' involved are not lexemes but inflectional forms of lexemes) are treated in the syntax simply as words representing particular syntactic categories. Their distribution is described just as the distribution of free words is described--by conditions on immediate dominance, feature distribution, and linear precedence. What sets a bound word apart from free words is a nonsyntactic principle of liaison that either permits or requires it to form a word-like unit with some neighboring word (again, more exactly, with some neighboring i-form), the host.

Nevis supposes that liaison is just 'phonological' attachment, but since the lexical phonological shape of an optionally bound word, like the English auxiliary *has*, can depend on whether or not there is liaison, I will assume that host-plus-clitic combinations are in fact morphosyntactic constructs of some sort, with structures like the following:

(1)



Here, X and Y are syntactic categories, X being the category of the host and Y of the clitic.

Some bound words, for instance certain of the i-forms of English auxiliaries, are optionally bound. They have 'weak forms' with a syntactic distribution that is a subset of the syntactic distribution of the corresponding 'strong forms', which are free words. Some bound words, like the Finnish particle clitics *-hAn* etc. treated by Nevis, are obligatorily bound. They have no corresponding 'strong forms'. Nevis argues that the Finnish particle clitics are in fact bound words because they belong to various classes of adverbial free words in Finnish, with which they share their syntactic distribution (differing only in that they must be attached to a host).

Nothing I have said so far would rule out the possibility of obligatorily bound words belonging to a category with no free word members in it. Indeed, this is the analysis I assume is correct for second-position clitics in languages (like Tagalog) that apparently have no class of free words restricted to this position.

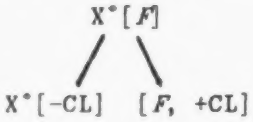
1.2. **Phrasal affixes.** A rather different picture is presented by another group of clitics, exemplified by the English POSS *'s* and the Finnish 'possessive suffixes' as analyzed by Nevis.

The paradigm example of a phrasal affix clitic has a phonological shape that is not available for free words (though the shape is available for inflectional affixes), and there is no class of free words it can be referred to in its syntax; thus it resembles an inflectional affix more than a free word. On the other hand, phrasal affixes are always located outside inflectional affixes, as English POSS is in (2), and unlike inflections they are always realized affixally, never processually (that is, never as gemination, vowel shift, subtraction, or the like). Finally, some phrasal affixes, like some bound words, exhibit 'promiscuous attachment', attachment to i-forms of virtually any syntactic category, as English POSS does in (3). Promiscuous attachment for such phrasal affix clitics is a consequence of the fact that they are located at the edge of some constituent rather than on that constituent's head.

(2) oxen's, schemata's
(3) the person I talked to's theories, the person who's talking's theories

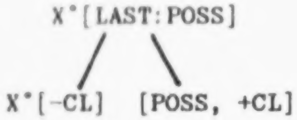
Nevis's proposal for describing a phrasal affix is that the feature *F* it realizes is distributed by syntactic rules. One special rule permits a lexical (0-bar) category with the feature *F* to branch as in (4).

(4)



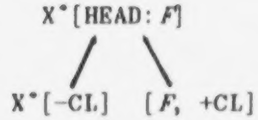
For English POSS, Nevis's GPSG treatment would associate the feature LAST, having the value POSS, with an N^2 modifying an N^1. LAST is a foot feature of a special type; like GPSG foot features in general, the feature must appear on a mother category if it appears on any daughter category, but unlike such foot features as WH, LAST must be restricted to occurrence on no more than one daughter category. Linear precedence rules require that a daughter category with the feature LAST follow all of its sisters, with the result that a lexical category with the feature LAST will in fact be the last word in its N^2. This category will then branch as in (4), giving a structure like (5) for *to's* or *talking's* as in (3), a structure in which POSS belongs to no syntactic category.

(5)



For phrasal affix clitics that are located on the head rather than at the edge of a phrasal constituent, Nevis's framework would have the relevant feature *F* distributed from the phrasal category to the head lexical category via the Head Feature Convention of GPSG. The lexical category will then branch roughly as in (6), which is parallel to (5).[1]

(6)



1.3. **Inflectional affixes.** Nothing in Nevis's framework requires that a feature distributed from a phrasal category to a lexical category must be associated with a branching like the ones in (5) and (6). Without a branching of this sort, such a feature (whether located at an edge or on the head) is simply realized via morphological rules, as an inflection (whether the inflection is realized affixally or processually). That is, in Nevis's scheme there are two entirely independent parameters: necessarily affixal realization (phrasal affix clitics being necessarily affixal, ordinary inflections not so) and edge location, with its accompanying promiscuity of attachment (both phrasal affix clitics and ordinary inflections being locatable in either way).

There are then four potentially distinct situations involving feature distribution, not word distribution: HEAD INFLECTION (the usual configuration), HEAD AFFIXAL-CLITIC (Finnish possessive suffixes, in Nevis's analysis), EDGE AFFIXAL-CLITIC (English possessives, again à la Nevis), and EDGE INFLECTION (a type I haven't discussed here, though in Zwicky (1984) I suggest that it might be exemplified). It can be very tricky indeed to decide whether a given range of data in some language illustrates one of these situations rather than another. Consider, in particular, how to decide between INFLECTION and AFFIXAL-CLITIC (whether it is a HEAD or an EDGE that is involved).

Not much separates inflections from affixal clitics in Nevis's framework. However, (a) an affixal clitic is necessarily affixal, while an inflection is not necessarily so (but most instances of inflection are in fact affixal anyway); and (b) an affixal clitic is located outside all instances of inflection within the morphosyntactic word. Criterion (b) usually turns out to be the crucial one--which is in some ways unfortunate, since there is always a way to treat affixal clitics as inflections in the absence of evidence of type (a): instead of positing a (language-particular) branching rule like (5) or (6), stipulate instead that the affix in question must fill the outermost affix slot, all other affixes having the default characteristic of filling inner slots. For English POSS, the choice is between stipulating in the syntax that the feature POSS conditions a branching as in (5), or stipulating in the morphology that POSS fills the second of two slots for inflectional affixes.

2. **Facts about POSS.** I will now argue that of the three possible treatments of English POSS within Nevis's scheme--as a bound word clitic, as an (edge-located) phrasal affix clitic, or as an (edge-located) inflectional affix--the last is the best. One consequence of this position is that the very existence of phrasal affix clitics, and of syntactic branchings like those in (5) and (6), is called into doubt, since English POSS is in fact the standard example of a phrasal affix clitic.

My argumentation will depend on claims about principles that describe the allomorphy of words, in particular on claims that certain sorts of morphological or morphosyntactic rules do not exist. Such negative claims cannot themselves be demonstrated (though they can be made plausible); the reader should understand at the outset that my conclusions are tentative.

2.1. **PL+POSS.** The basic facts that are relevant to the issue are very familiar.[2] As illustrated in (7b), parallel to the singulars in (7a), PL and POSS can combine, but when the shape of PL is the (regular) sibilant suffix, as in (7c), POSS is suppressed. The examples in (7) involve both the prenominal possessive construction and the doubled possessive construction of *a friend of mine*, in which POSS co-occurs with the prepositional possessive in *of*.

(7) a. my oldest kid's ideas, a friend of my oldest kid's
b. the children's ideas, a friend of the children's
c. the two kids'/*kids's ideas, a friend of the two kids'/*kids's

The suppression is not phonologically conditioned, as is shown by the examples in (8), where the nouns to which POSS attaches end in one of the sibilants /z/ or /s/ but POSS is not suppressed. These examples involve both ther prenominal possessive and the locational possessive of *at/to/near Kim's* 'at/to/near Kim's place'.

(8) a. the fuzz's old cars, at Buzz's
b. the bus's doors, at Cass's
c. the terrace's tiling, at Thomas's

POSS is suppressed no matter which of the three allomorphs of the regular PL occurs on its host:

(9) a. the dogs'/*dogs's kennel
b. the cats'/*cats's favorite places
c. the crocuses'/*crocuses's bright blossoms

And it is suppressed whether its host is the head noun of the NP, as in (7) and (9), or just a noun that happens to end that NP, as in (10b) and (11b).

(10) a. anyone who likes children's ideas
b. anyone who likes kids'/*kids's ideas

(11) a. people attacked by Katz's reactions to him
b. people attacked by cats'/*cats's reactions to them

2.2. **Z+POSS.** POSS is also suppressed in the presence of other Z affixes (those with the same allomorphy as PL). The examples in (12) illustrate suppression in the presence of the verbal suffix PRES, while those in (13) illustrate suppression in the presence of another POSS; POSS in a prenominal possessive is suppressed by POSS in a locational possessive in (13a), by POSS in a doubled possessive in (13b).

(12) a. people who hurry's ideas
b. people who are hurrying's ideas
c. everyone who hurried's ideas
d. anyone who hurries'/*hurries's ideas

(13) a. everyone at Harry's/*Harry's's ideas
b. a friend of my children's/*children's's ideas

2.3. **Multiple suppression.** In fact, any number of instances of POSS can be suppressed. The construction in (14) 'ought to' have two instances of POSS, one for the doubled possessive and another for the prenominal possessive modifying *ideas*, but both are suppressed by PL on *kids*. And the construction in (15) 'ought to' have three instances of POSS, one for the locational possessive, a second for the doubled possessive following *acquaintance*, and a third for the prenominal possessive modifying *crazy ideas*, but all are suppressed by PL on *Smiths*.

(14) a friend of my two kids'/*kids's/*kids's's ideas

(15) an acquaintance of the people
at the Smiths'/*Smiths's/*Smiths's's/*Smiths's's's crazy ideas

3. **Formative problems.** The data in 2.1 through 2.3 present problems for any analysis that treats POSS as a syntactic formative, that is, as a constituent licensed by syntactic (rather than morphological) rules. In both a bound word treatment of POSS and a phrasal affix treatment, POSS is in fact a formative, so that the data speak against both types of analyses.

To see what the issue is, observe that a formative POSS (like all other formatives) must have a lexical entry, and that its lexical entry must include a phonological representation or representations for POSS. Assuming that the lexical phonological representation of the Z suffixes PL and PRES is /z/, what we should like to say about the allomorphy of POSS is sketched in (16). The intended function of the UNLESS clause in (16) is to block the assignment of any phonological representation to POSS in the circumstances specified in the clause.

(16) POSS has the lexical phonological representation /z/, UNLESS its host ends in a morpheme /z/.

There are at least two problems here. The first is that (16) takes account not merely of the phonological shape and/or the morphosyntactic features of the host, but of the specific morphological composition of the host (including phonological properties of one of its constituent morphemes). Lexical phonological shape can depend on properties of adjacent words--in the model of Zwicky (1986) such a dependence would be expressed in a morphosyntactic subcomponent of 'shape conditions'--but so far as I know conditions of this sort are blind to the internal morphological composition of these adjacent words.

Things are not improved if the lexical phonological representation of POSS is just /z/, in which case there must be a rule deleting POSS /z/ immediately after a word ending in a morpheme /z/. I am not convinced that there are any good examples of rules deleting specific formatives (despite the title of Zwicky and Pullum (1983)), and so far as I know, rules of external sandhi affecting word W are blind to the internal morphological composition of words adjacent to W (though not, of course, to their phonological properties and morphosyntactic features).

A second problem with (16) is the UNLESS clause itself. A contextual condition on the insertion of a particular lexical item should predict whether or not the resulting configuration is acceptable, not whether or not the item has a nonzero realization. For example, the insertion of the strong form *le* for the masculine definite article in French is permitted UNLESS the following word begins with a vowel. It does not follow from this condition that that 'the man' has a suppressed definite article: ***homme***. What does follow is that *le homme is unacceptable. This is not at all the intended effect of the UNLESS clause in (16).

4. **Success with inflection.** Now I consider the treatment of POSS as a morphosyntactic feature, distributed by syntactic rules but realized as a suffix by the same sort of (morphological) rule appropriate for the standard examples of inflectional suffixes--a realization rule in the Zwicky (1985) framework for inflectional morphology.

In this framework, realization rules are distinguished from the operations associated with them (suffixation of specified material, reduplication of initial CV, etc.). A single realization rule might be associated with two or more operations (one rule realizing PL on German nouns is associated with an umlaut operation and also with the suffixation of *-er*), and the same operation might be associated with two or more realization rules (in English, suffixation of /z/ is associated with a rule realizing PL and with one realizing PRES).

Moreover, there can be conditions on a realization rule or on one of its operations, and the consequence of an unsatisfied condition will be different in the two situations: an unsatisfied condition on the rule results in unacceptability, as above, but an unsatisfied condition on the operation results in failure of the operation, which is to say, no effect. For example, at least two rules realizing PL in German involve the operation in (17); when the condition in the UNLESS clause obtains, the operation doesn't apply, and no suffix is attached, so that the plural of *Flicken* 'patch' is *Flicken*.

(17) Suffix /ə/ UNLESS the base ends in /ə/ followed by a sonorant consonant.

The ability of realization rules to take account of the internal structure of the bases they operate on is considerable, though perhaps limited by metaconditions like strict cyclicity. In any event, a realization rule like the one in (18) violates no metacondition that I know of.

(18) In the context of [BAR:0], [POSS] is realized by operation (19).

(19) Suffix /z/ in slot 2 UNLESS there is a /z/ in slot 1.[3]

5. **POSS suppressing POSS.** The morphological analysis I have sketched in (18) and (19) accounts for POSS suppressing POSS, as in (13)-(15), not via the UNLESS clause in (19) but rather via the stipulation that the suffix fills slot 2. The effect of multiple instances of POSS would only be to require several times that this slot be filled with /z/.

But in fact the syntactic part of the (edge-located) inflection treatment would by itself have the effect of POSS suppressing POSS. Consider what the syntax would have to say about an example like (15). The NP node dominating *the Smiths* will have the feature [LAST:POSS], as an instance of a locational possessive. The NP node dominating *the people at the Smiths* will have the feature [LAST:POSS], as an instance of a doubled possessive. And the NP node dominating *an acquaintance of the people at the Smiths* will have the feature [LAST:POSS], as an instance of a prenominal possessive. The Foot Feature Principle, the special restriction on the feature-valued feature LAST, and linear precedence conditions for LAST will together require that the word *Smiths* have the feature [POSS]--because it is the last word of *the Smiths* and because it is the last word of *the people at the Smiths* and because it is the last word of *an acquaintance of the people at the Smiths*. The single feature [POSS] satisfies all three requirements.

Treating POSS edge-inflectionally in a GPSG framework thus requires that POSS suppress POSS. To get any other outcome for an edge-located inflection we would somehow have to distinguish different 'sources' for POSS; at best this would represent a considerable complication of the feature system, and at worst it would threaten to subvert the context-free character of a GPSG syntax.

Notes

*This is the version of 13 May 1986.

[1] I am glossing over a number of details here. Current versions of GPSG do not treat HEAD as a category-valued feature, as Nevis and I treat LAST, so that (5) and (6) would not be fully parallel.

[2] A critical summary of much of the literature on PL+POSS is provided in Zwicky (1975:165-75). Data like those in 2.2 are cited by Stemberger (1981:sec. 2.11).

[3] This analysis amounts to a stipulation that suppression of POSS occurs in the contexts described in (19). It does not derive this instance of suppression from a more general principle, as Stemberger (1981) attempts to do in his treatment of the POSS and related facts as instances of 'vacuous rule application'.

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What's Become of Construction Types?*

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1. One attractive feature of classical transformational grammar (inherited from the earlier work of Zellig Harris) was that it promised to allow us to reconstruct the traditional notion of **construction (type)** within a formal theory of syntax. Pairs of examples like *(You are) eager to please* versus *(You are) easy to please* or *(the idea) that we should go* versus *(the idea) that we hit upon* could be analyzed as having the same lexical items, lexical category assignments, and constituent divisions within them, but as nevertheless representing syntactically distinct objects, differing analytically in the transformational rules invoked in their derivation.

A **construction type** (CT) in the sense I will use the term here is a cluster of syntactic properties (which I will call its **characteristic properties**, or CPs), involving one or more of the following: conditions on category membership of the participating constituents, conditions on the category membership of the whole construct, conditions on the distribution of morphosyntactic features in the constituents and/or construct, conditions on the appearance of 'grammatical' words or clitics, conditions on the co-occurrence of the construct with particular prosodies, and conditions on the linear ordering of the constituents. It must be possible for the CPs of different CTs to co-occur or to be overlaid on one another, so that a particular example can instantiate several CTs at once. *I was asked to go*, for instance, should be treated as an instance of at least six CTs: agentless passive, one type of infinitival complementation, object-controlled equi, subject-verb agreement, government of past participle verb forms by the passive auxiliary, and declarative clause.

CTs will have important properties beyond their CTs, of course. Thus, though the CPs of the *promise* + NP + VP[+INF] type and of the *ask* + NP + VP[+INF] type are virtually (if not fully) identical, the two constructions cannot be treated as identical for the purposes of reduced coordination, only the latter combines with a passive CT, and the two combine with a reflexive object in different ways:

(1) *I promised and asked Kim to go.

(2) a. *Kim was promised to go.
b. Kim was asked to go.

(3) a. I promised Kim to absent myself/*herself.
b. I asked Kim to absent *myself/herself.

The properties illustrated in (1)-(3) are at least arguably syntactic. But some of the further properties of CTs are lexical, and some are clearly semantic. The connection of CTs to the lexicon is through **subcategorization**; only certain lexical items can appear in particular CTs. The connection to semantics is twofold. Most strikingly, it comes through distinctions in **compositional semantics**, with different CTs being associated with distinct interpretations.

Thus the four CTs in (4) have the same CPs, but are understood in rather different ways. In all except (4c), the NP and VP[+INF] are understood as logical subject and predicate, respectively, in a proposition P that functions as the Patient of the verb's action; (4c) is also understood as having such a Patient proposition P, but P's argument is represented not by the NP in (4), but instead by the subject NP of the mother VP in (4). (These facts might be taken to be the basis for an account of the reflexivization data in (3).) Next, in (4b) and (4c), but not in the other CTs, the NP in (4) refers to the Recipient of the verb's action and the subject of P is understood to be an Agent. (As a result, these constructions are odd with an inanimate, dummy, or idiom-chunk NP, as in (5).) Finally, the CT in (4d) differs from the one in (4a) in conveying the additional assumption that P refers to a currently obtaining state; the CT in (4a) is consistent with such an assumption but does not require it, as I illustrate in (6). (These observations are not intended to constitute an informal sketch for a formal account of the semantics of (4a)-(4d); I am maintaining only that the aspects of meaning I have mentioned must be in some way derivable from a semantic description of these CTs.)

(4) VP ---> V NP VP[+INF]

a. V: expect, force, like, want,...
b. V: ask, tell, request, persuade,...
c. V: promise
d. V: believe, know, imagine, consider,...

(5) a. ??I asked/promised the rock to sing.
b. ??I asked/promised there to be rain. ??I asked/promised it to rain.
c. ??I asked/promised tabs to be kept on Sandy.

(6) a. I expect/believe Kim to be shy.
be a spy.
be the Senator from Kansas.
be taking a nap.
have won often.
have no friends.
need money.
constitute a problem for us.
it to be raining.

b. I expect/??believe Kim to win often.
go to work by bus.
have a party every week.
it to rain very little in Beijing.

The other connection to semantics is in **word semantics**. On the whole, the lexical items subcategorized to occur in a particular CT form a natural semantic class. I am not claiming that subcategorization classes are **identical** to semantic classes, only that there are default relationships between them, which can be expressed implicationally. We expect future-oriented verbs like *expect* and *want* to occur in the CT of (4a) and simple 'mental action' verbs like *think* and *imagine* to occur in the CT of (4d), for instance, but there can be exceptions--like the future-oriented *try*, which nonetheless fails to occur in the CT of (4a), and the mental-action verb *reflect*, which nonetheless fails in occur in the CT of (4d).

(7) a. *Robin tried Sandy to run faster.
 b. *Robin reflected Sandy to be a spy.

2. The reconstruction of the notion of CT in classical TG is hampered by the framework's distinction between two types of rules (phrase structure rules describing deep structures, transformational rules deriving surface structures) and by the existence, in most detailed descriptions, of 'clean-up' transformations of various sorts. Both factors work against the simple identification of CT with transformational rule.

In early GPSG (Gazdar 1982) these difficulties are to some extent averted, and it becomes possible to view each immediate dominance rule as a description of a CT. (It is not the case that to every CT there corresponds an ID rule, since agreement and linear precedence are described by conditions distinct from ID rules, and government ought, in my view, to be as well.) In the GPSG literature of the period there are frequent occurrences of distinct ID rules with identical categorial content, along the lines of (8), the parts of which correspond to the parts of (4). Two things distinguish one such ID rule from another: its index and its translation principle.

(8) a. <17, VP ---> V, NP, VP[+INF], t_{17}>
 b. <18, VP ---> V, NP, VP[+INF], t_{18}>
 c. <19, VP ---> V, NP, VP[+INF], t_{19}>
 d. <20, VP ---> V, NP, VP[+INF], t_{20}>

The indices for each ID rule serve as lexical subcategorization features. The verb *expect* then has [17] as one of its syntactic features in the lexicon, and *believe* has [20] as one of its features. (Lexical redundancy rules can state default relationships between aspects of the lexical semantics of a verb and these syntactic features.)

3. It has been observed by a number of critics that statements like those in (8) are redundant, since each index serves simply to pick out a particular translation principle. If we eliminate this redundancy, and just have lexical entries refer directly to translation principles, then there is no reason to have separate ID rules. The result is the scheme advocated by Klein and Sag (1985) and adopted in two different variants by Gazdar et al. (1985) and Pollard (1984), a scheme in which there is only one ID rule for the CTs in (4). Dowty's (1985) approach also would have only one ID rule, lexical entries for the different verb classes differing not in the compositional semantic principles they call up but in their lexical semantic content. These

details, though important in other contexts, do not matter here. What is relevant is the fact that these approaches posit only one syntactic rule for the four CTs, so that each ID rule no longer represents exactly one CT.

So much the worse for our pretheoretical notion of construction type, you might say. If an adequate analysis for the syntactic, semantic, and lexical facts can do quite well with only a single ID rule, then perhaps we need to revise our view of CTs.

But distinctions between CTs could have reflexes in parts of grammar other than syntax, semantics, and the lexicon--in particular, in **phonology**. And they could have reflexes in extragrammatical domains, in particular in **pragmatics**, understood very broadly.

First, a few words about phonology. The syntactic structures assigned by the four rules in (8) are identical. The only difference between structures with *expect*, *ask*, *promise*, or *believe* in them lies in the syntactic features of the verbs themselves, that is, the features [17], [18], [19], and [20]. As the details of the Celtic consonant mutations make clear, individual syntactic features can condition or constrain (mor)phonological rules. However, I know of no phonological consequences of the differences among the putative features [17]-[20] in English. This is only, of course, absence of evidence that there are distinct features, not evidence of nondistinctness.

Now, pragmatics, understood (disjunctively) as encompassing linguistic markings of social group membership, styles and registers, discourse organization, and interactional roles. Pragmatics (in this sense) is relevant to the CT issue by virtue of the following fundamental assumptions:

(9) a. Any linguistic item--lexical item, syntactic construction, morphological rule, prosodic pattern, or phonological rule--can be invested with a pragmatic value.

b. And an utterance has a pragmatic value (only) by virtue of the pragmatic value of the linguistic items realized in it.

So if we find a pragmatic value associated with a structure only when it has certain words, and not others, in one of its slots, we are entitled to assume that there is some difference in linguistic items that distinguishes the two situations.

In the example at hand, there are special pragmatic values associated with the structure of (4) and (8) in the *believe*, or (d), case. The existence of these values then supports the claim that there is more than one linguistic item, in particular more than one CT, here.

The (d) case differs pragmatically, from the other three, and from constructions involving mental-action verbs like *believe* with finite-clause complements, in two ways, its stylistic level and its discourse functions. Stylistically, (10) must be classified as formal, in contrast to the neutral (11) and (12).

(10) I believed/considered/understood Gerry to be a Ruritanian spy.

(11) I believed/considered/understood that Gerry was a Ruritanian spy.

(12) a. I expected/intended/caused Gerry to be a Ruritanian spy.
b. I asked/convinced/told Gerry to be a Rurtitanian spy.
c. I promised Gerry to be a Ruritanian spy.

In addition, (10) is in some sense more 'about' the referent of its NP object (at least when there is a concrete referent) than the sentences in (11) and (12) are. In consequence, the *believe* construction is odd when the referent of this NP is inherently unlikely to be topical, as in (13), and when it is not topical in the discourse context, as in (14).

(13) ?I believe some anonymous peasant to have written these verses.

(14) a. I treasure every moment I spend with my friends Kim, Sandy, and Robin. They truly enjoy life. ?And I believe their dog Arf to be rather amusing.
b. I treasure every moment I spend with my friends Kim, Sandy, and Robin. They truly enjoy life. And I believe that their dog Arf is rather amusing.

The upshot of this discussion is that I view with some suspicion the move that has been made within GPSG and categorial grammar to describe categorially identical constructions via a single syntactic rule, and to treat the differences among such constructions entirely as differences in their semantic values (whether compositional or lexical). Earlier versions of GPSG, in which each ID rule could be taken as representing a single CT, seem to me to be nearer the mark, and easier to integrate with phonology and with the various extragrammatical domains subsumed under the general heading of pragmatics.

(One might have thought from its name that Grammatical Construction Theory, as in Lakoff (1984), would take a position similar to the one I am favoring here. But in fact this framework, like recent GPSG and categorial grammar, abstracts syntactic forms, to the point of treating deictic *there* constructions and expletive *there* constructions as instances of the same structural category, differing only in their semantics.)

I have also stressed the potential of phonology and pragmatics as checks on the adequacy of analyses framed on syntactic and semantic grounds, a potential that results from the observation that phonology and the various domains of pragmatics use--assign values to--the material provided by syntax.

Note

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